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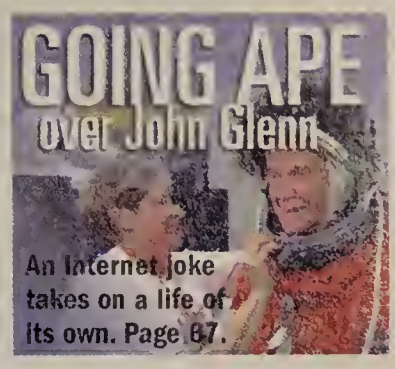
DECEMBER 7, 1998 VOLUME 15, NUMBER 49

NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING



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The right software combo can help keep your Web site in tune. **Page 55.**

Review:

WebTrends' Enterprise Suite 3.0 gave a Blue Ribbon performance in our lab tests. **Page 56.**

NetworkWorld Blue Ribbon

Interactive Buyer's Guide:

Compare 20 site monitoring and content management products, using our tools to help you narrow the field.
Online at www.nwfusion.com.

Christmas comes early for Home Shopping net

By Jim Duffy
St. Petersburg, Fla.

It's the holiday shopping season again, and with it comes a flood of calls to Home Shopping Network.

This year, the retailer is ready for those calls, thanks to an early Christmas present to itself: a high-speed, fully redundant Layer 3 switched Ethernet network connecting six virtual LANs.

LESSONS FROM In-Site LEADING USERS

The new network is part of a $5.5 million overhaul of the company's call center. The revamped call center is geared to handle more calls, speed customer response and generate more revenue. Home Shopping Network installed the network late in the summer, in time for the holiday rush.

"This is our busy season — the first of October to the end of January," says Roderick White, vice president of telecommunications. "We're really focused on keeping the business up and running, and

See **Home Shopping,** *page 84*

Brain drain hits MCI WorldCom

Dozens of executives flee, rumors of layoffs fly.

By David Rohde and Denise Pappalardo
Washington, D.C.

Eleven weeks into the mega-merger between MCI and WorldCom, the exit door is wide open and MCI executives are fleeing the premises.

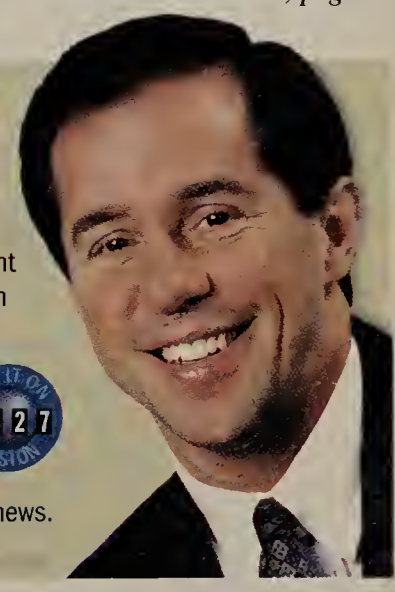
The newly combined MCI WorldCom has lost dozens of key managers and specialists — virtually all of them from the MCI side — in network engineering, security services and product management. And last week, a wave of rumors swept through MCI WorldCom's rank and file that a layoff of about 7,000 people — close to one-tenth of the company's work force — is slated for this month.

MCI WorldCom spokesman Jim Monroe declined to comment on personnel issues except to acknowledge dupli-

See **MCI WorldCom,** *page 83*

EXECUTIVES ON THE MOVE

Stephen Von Rump, former vice president of enterprise services, is just one of many MCI executives who have left MCI WorldCom since its recent formation. For a list of the former brain trust, see **page 83.**



Online:

FIND IT ON 9427 FUSION

- Overviews of the executives' new companies.
- MCI WorldCom financial and stock news.

Wall St. slams Cabletron

By Jim Duffy
Rochester, N.H.

Shareholders and analysts are calling for new blood at Cabletron after the company shocked Wall Street by saying it will report a loss for the third quarter.

Cabletron says it expects to post a loss of 10 cents per share for its fiscal third quarter ended Nov. 30, rather than the 11-cents-per-share gain forecast by Wall Street analysts and First Call, a financial

See **Cabletron,** *page 84*

ASICs EVERYWHERE

Hard-wired network functions are turning up in more than just switches.

By Jeff Caruso

It's one thing to send data hurtling along a wire at gigabit speed. It's quite another to apply policies to packets moving that fast.

SPECIAL REPORT: Network processors

That's why equipment vendors soon will hard-wire advanced network functions such as quality of service and security into microchips, which will run these traditionally software-based functions at much higher speeds. The new chips will help network managers guarantee that critical data takes full advantage of high-speed links as companies install Gigabit Ethernet backbones and Fast Ethernet to the desktop.

The benefits of using Application Specific Integrated Circuits (ASIC) in network devices are well documented. After all, ASICs are behind the dramatic drop in prices and the increase in speed of LAN switches and network interface cards (NIC) over the past few years.

Now, vendors are starting to extend the technology to every aspect of networking.

"It's really a speed thing," says Michael Speyer, program manager at The Yankee Group, a

See **ASICs,** *page 16*

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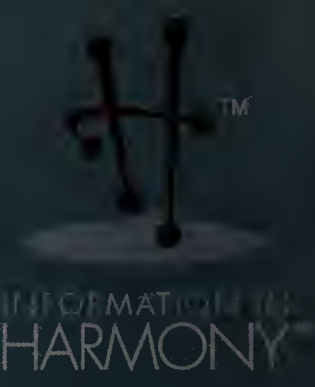

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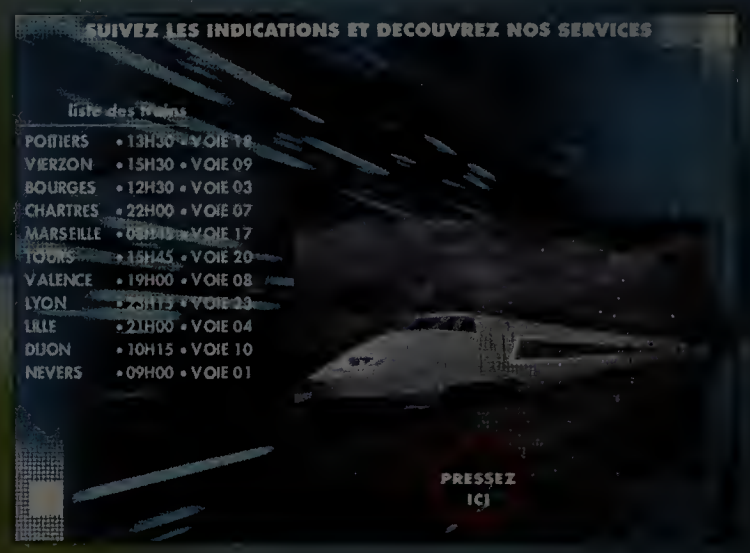

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FIVE WAYS TO SAVE

Here's a plan for slashing your telecom costs. Page 69.

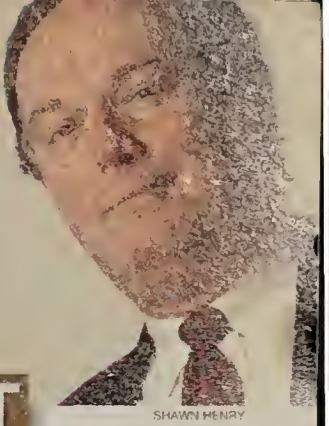
SIS/THEO RUDNAK

DESKTOP DEFENSE

Columnist Winn Schwartau says Signal 9's personal firewall is worth a look. Page 53.

VPN GRADUATE

Bentley College installed a VPN – under budget – that has made life easier for Tom Boerman and the school's other net administrators. Page 29.



SHAWN HENRY

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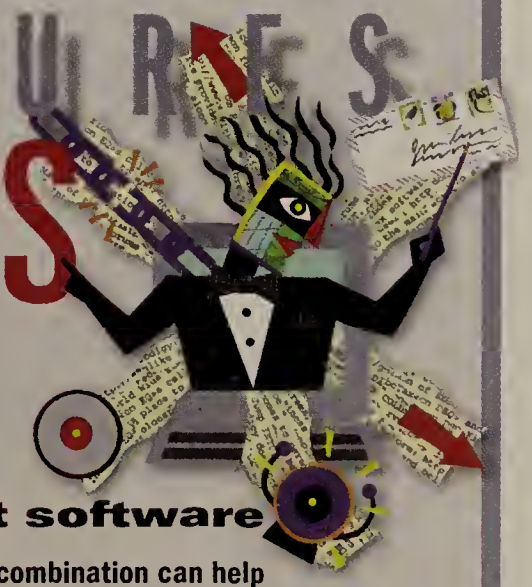

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GOING APE OVER JOHN GLENN:

An Internet joke takes on a life of its own. Page 67.

DAVID MCLIMANS

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This Week

Only on Fusion

Keeping Current. When it rains it pours. Fred McClimans looks at how to keep problems from cascading across your network. **DocFinder: 9432**

Free newsletters. We're starting two new e-mail newsletters. Network World Fusion Focus on Security is written by security expert Winn Schwartau; the Internet Services newsletter by *Network World* Senior Editor Denise Pappalardo. **DocFinder: 9433**

IP telephony. Tom Evslin, CEO of upstart carrier ITXC Corp., will be online to answer your questions about IP telephony in this week's Spotlight forum. Read the former AT&T and Microsoft executive's statement, then post your thoughts and questions. **DocFinder: 9426**

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News briefs, December 7, 1998

Sign me up

The government's Selective Service arm has gone high-tech. Men ages 18 to 25 can now register for the draft online at www.sss.gov. The site explains everything from why we need a draft registration and why men over age 26 don't have to register to why women are still not required to sign up. If you are forgetful, you can "check a registration" with your last name, birthday and Social Security number, and the site will tell you if and when you signed up.

How to build the next-generation Internet

The newly formed Next Generation Internet Forum is seeking input from customers, equipment vendors and service providers on the issues and applications that will shape the future of the Internet. The group has extended an open invitation to its Dec. 16 meeting at Argonne National Laboratory, near Chicago. Executives from the U.S. Army National Guard, Virginia Tech, Electronic Data Systems, Bell Atlantic, MCI and other organizations are expected to attend. The forum is trying to bring communities together to define a next-generation Internet that supports multimedia applications and meets an array of customer needs. You can register by calling (630) 252-5587 or visiting www.ngiforum.org.

Semiconductor vendors: Hey, don't look at us

Sounding a little like Bart Simpson, the Semiconductor Industry Association (SIA) tried to distance its members from any potential Year 2000 computer problems by basically saying, "Hey, it wasn't me, man." In a paper issued last week, the association claimed that the vast majority of semiconductors — including the microprocessors and memory devices used in PCs — are incapable of generating, comparing or sorting date information, and as a result cannot contribute to any Year 2000 problems. However, the SIA acknowledged that a "small percentage" of semiconductors could be sensitive to the date change. Then again, a small percentage of the $137 billion global semiconductor industry could mean a lot of chips. The paper is at www.semichips.org.

Cisco goes shopping again

Cisco last week said it would buy PipeLinks, a San Jose, Calif., maker of SONET routers capable of simultaneously transporting circuit-based traffic and routed IP traffic. Cisco, which already held a minority stake in the company, will acquire the remaining stock with roughly $126 million in Cisco shares. PipeLinks' router is intended to help service providers offer integrated network services for data and voice at the network's edge. Combined with Cisco's IOS software, the PipeLinks router is expected to allow providers to offer new services, such as managed Internet access and native LAN services, over an existing time-division multiplexing infrastructure, Cisco says.

The ol' switcheroo

Alteon Networks next week will add distributed server load-balancing technology to its switches, enabling them to redirect traffic intended for a Web server to another site that may be less busy or closer to the user. Using Alteon switches, Web site providers will be able to maintain copies of a site in different locations. For example, requests coming from Europe could be directed to a site located in Europe, and requests from North America could be directed to a site there. This way, users would get a faster response because their requests wouldn't traverse an intercontinental link. The new capabilities are available as a software upgrade to the Alteon ACEdirector 2 or ACEswitch 180 for $3,000.

Sprint to unveil ION services

Network cost savings not as great as originally touted.

By David Rohde

Sprint today will roll out its first combined voice/data services, but with more modest aims and user cost savings than the company had indicated when it originally announced the convergence effort.

The new services are part of Sprint's Integrated On-Demand Network (ION) family, which the carrier announced with great fanfare in June. The ION services mix voice and data traffic over a single-access facility to a Sprint ATM backbone network.

The main service, called Sprint ION, will offer a choice of multiservice WAN-access gear from Cisco or Nortel Networks (see graphic). Both vendors' boxes will support LAN and PBX interfaces to pump voice and data traffic over dedicated-access channels.

Four additional ION services will consist of modifications to Sprint's standard frame relay, ATM, voice and Internet services. Under these new offerings — called, for example, Sprint ION for Frame Relay — a Cisco or Nortel box will be installed on premises for a specific voice or data service, as a replacement for or co-existing with routers or other WAN-access equipment. The other three services are Sprint ION for ATM, ION for Voice and ION for Internet.

Voice a plus

One reason why users might decide to move from Sprint's regular frame relay offering to Sprint ION for Frame Relay is to add voice capabilities to their frame relay nets, explains Mike Grubbs, Sprint's director of enterprise solutions. Beyond that, the service will offer basically the same features as classic frame relay.

All five initial ION services will have some limitations. Only sites with T-1 access or greater will be eligible for the services until Sprint introduces switched-access capability in the second half of 1999.

In addition, local phone calls and Web-enabled management tools will not be available until that date.

Pricing for all Sprint ION services will not differ radically from that of Sprint's conventional offerings. Services will be based on ports and permanent virtual circuits (PVC), initially at prices 5% to 10% less than comparable Sprint fast-packet offerings, though the company did not release any actual prices.

Can it still save?

Originally, Sprint Chairman William Esrey claimed the ION architecture could save users up to 70% in network costs. Sprint officials now say users are wary of paying on a usage basis and prefer the familiar per-port and PVC pricing common to typical frame relay and ATM offerings.

Still, Sprint officials believe that overall the ION services can save 20% of the total cost of ownership of separate corporate data and voice networks because Sprint installs and upgrades the equipment as needed, and all traffic rides over a common infrastructure.

One question that remains largely unanswered is how Sprint will reach switched-access locations, typically branches that cannot justify the monthly expense of a T-1 access line.

Ordinary analog dial-up lines won't accommodate the dial-up ION services scheduled to debut in the second half of 1999.

A change of plans

"There's been a change of strategy over the past six months," Grubbs says. Originally, Sprint was thinking of purchasing entire digital subscriber line (DSL) links from local exchange carriers.

Now Sprint, in most cases, is thinking of installing its own DSL Access Multiplexer in areas where the service will be offered, and leasing only the physical local loop from the local carriers. ■

ION'S KEY BOXES

Sprint's ION family for customer premises will initially be based on the following:

Vendor	Model name and number	Function	Eligible customer premises
Cisco	MC3810	Multiprotocol, multiservice router optimized for data and voice	Those with T-1 dedicated access
Nortel Networks	Passport 6420, 6440 and 6480	Multiservice ATM switches for integrated voice and data out of large offices	Those with T-1, T-3 or OC-3 dedicated access

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Java is picking up steam

By Chris Nerney
New York

Like its famous coffee-cup logo, Sun's Java programming language once again appears to have a head of steam.

Beset by a yearlong backlash triggered by excessive hype, inadequate performance and ongoing legal battles, Sun's Java programming language has bounced back in recent weeks to regain momentum on the eve of this week's Java Business Expo here.

Among the events that have thrust Java back into the spotlight just in time for the second annual show are:

- SAP AG's plan to announce that Java will be a development front end for its software.
- A preliminary injunction in Sun's lawsuit against Microsoft that forces the latter to adhere to Sun's standards for Java.
- The announcement seven days later that Sun would partner with America Online to develop specialized AOL consumer devices that would be powered by PersonalJava.

Really big show

Sun's big announcement at the Java show will be the unveiling of Java Development Kit (JDK) 1.2, originally slated for release last year.

JDK 1.2 features a new just-in-time compiler designed to boost performance; tighter security features; improved database connectivity; additional support for component applications built with JavaBeans; and compatibility with the Common Object Request Broker Architecture standard.

Sun also is counting on the more than 200 vendors exhibiting at the show to accelerate Java's new momentum by showcasing uses of the technology in the enterprise, particularly on the server side.

"The Java Business Expo is the best example of why Java will matter in the future, because it underscores its use for business," says Ron Rappaport, an analyst at Zona Research in Redwood City, Calif.

Among the Java applications show attendees will see are a business logic application server from Vision Software of Oakland, Calif.; procurement software from Trade'ex Electronic Commerce Systems of Tampa, Fla.; and document management software from NovaSoft Systems of Burlington, Mass.

SAP will announce at a show of its own this week plans to use Java as an alternative to its proprietary ABAP programming language. That way, developers who may not be well-versed in ABAP can use Java to make changes in SAP's popular R/3 business software or to connect R/3 to other software.

SAP will include Java alongside ABAP in R/3 and other products, such as customer-relations management and supply-chain management software.

Although new applications are cropping up, that doesn't mean Java has made a big impact to date in the enterprise. Adoption has been steady, though slow and unspectacular, as many enterprises have opted to wait for performance to improve and for Sun's lawsuit with Microsoft to be resolved before committing to Java.

"It's still early," says Judith Hurwitz, president of Hurwitz Group in Framingham, Mass. "Clearly, there's momentum, but the reality is this kind of significant technology takes time to mature. It will take a couple years before all the stuff developers want from Java is there."

One major impediment to Java's adoption by enterprises is a lack of qualified programmers, she says. "The skills base isn't out there yet, and that remains a major issue for customers," Hurwitz says.

What is available, however, is Enterprise JavaBeans (EJB), chunks of precoded component software that can be joined to build large server-based applications.

Released in March — too late to make good on Sun's claim that 1998 would be the Year of Java on the Server — EJB since last summer has been integrated by application server and development tool vendors, including WebLogic, Gemstone, Persistence and Bluestone. These vendors and others will be showcasing EJB-based products at this week's show.

"Enterprise JavaBeans has really triggered development efforts on the server," says Anne Thomas, a senior analyst with Patricia Seybold Group in Boston.

Thomas also says she is "seeing more and more people starting to use Java as their enterprise development language. They start by doing prototypes, and then realize how fast they can develop with Java." ■

What's hot, what's not

Hot:
- Judge forcing Microsoft to support Java 100%
- Enterprise JavaBeans
- PersonalJava devices

Not:
- Java-based network computers
- Performance
- Java on the client

JAVA TAKES CENTER STAGE

Several recent events have focused the industry spotlight on Sun's Java technology, including:

Nov. 17 – A U.S. District Court judge grants a preliminary injunction against Microsoft in Sun's lawsuit. Microsoft is given 90 days to make its Java-based products comply with Sun's Java compatibility standards.

Nov. 24 – AOL announces its plan to buy Netscape. Sun strikes a side deal with AOL to introduce Java technology to millions of consumers via AOL devices running on PersonalJava.

Dec. 1-3 – James Gosling, Java inventor and Sun vice president, testifies in the Department of Justice's antitrust trial against Microsoft.

Start-up policy mgmt. software fluent in all languages

By Jeff Caruso

Trying to build a policy-based network can seem like trying to build the Tower of Babel because every vendor has a different way of telling their routers and switches to apply policies.

This situation is giving rise to third-party software that can apply policies to each vendor's network equipment in that equipment's native tongue. The latest entrant in this area, Ukiah Software, will unveil software this week, following on the heels of other start-ups, such as Orchestream and IPHighway.

The first iteration of Ukiah's NetRoad Active Policy System will support Cisco routers and Cabletron's SmartSwitch Router, with other network devices following later. The vendor plans to support application servers as well.

Orchestream currently supports Cisco and Xedia equipment, and plans to support several other vendors' gear early next year. IPHighway isn't vendor-specific. Its offering works with products that support the prioritization standards IP Precedence and Resource Reservation Protocol.

Ukiah says its product differs from competitors' in that its policies can be dynamic. The software can monitor a critical application through Remote Monitoring probes, and the product can modify policies to grant an application more bandwidth if response time rises above a certain threshold.

In the second half of next year, the company will add security management, and accounting and billing. Its software will run initially on Windows NT and will ship next quarter for a base price of $25,000.

Major equipment providers — such as Cisco, Nortel/Bay and 3Com — earlier this year announced plans to develop policy-based management, but only for their own boxes. This isn't much use to users with multivendor networks.

"Everybody's concerned about the different types of traffic on their network needing to be controlled and prioritized, and policy-based networking is certainly a seemingly viable way to do it," says Mike Ackermann, network planning manager at Blue Cross/Blue Shield in Detroit. "But I'm a little concerned about it potentially being a single-vendor solution, which in my opinion would render it almost completely valueless."

Policy-based networking is a way for network managers to lay out policies at a network man-

See **Policy,** *page 85*

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U.S., Europe at impasse over privacy

Cultural differences highlight deadlock; U.S. doesn't want to be data police.

By Ellen Messmer
Washington, D.C.

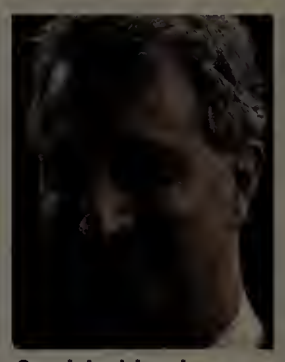
U.S. and European government officials last week acknowledged they are struggling to resolve a dispute over new data privacy rules. The rules impact how U.S. companies can process personal data about Europeans, whether it be Internet-based customer data or employee information on intranets.

The European view is that U.S. firms must get permission from individual Europeans for each new use of their personal data — and the U.S. government must be willing to somehow enforce this.

U.S. companies say the deadlock could hurt their electronic commerce efforts and might interfere with their international network expansion plans.

Failure to comply with the European Union Data Privacy Directive makes U.S. firms liable for fines in European countries in which the companies collect data on citizens. It may even result in a cut-off of data transfers from Europe.

While sympathetic to Europe's pleas for privacy, the Clinton administration says the U.S. is unwilling to introduce the kind of "data police" becoming commonplace in countries such as Germany and Italy. The U.S. is sticking to the notion of self-enforcement, whereby businesses issue privacy policies describing their data collection practices or allow independent parties to police them.



Special advisor Ira Magaziner *says the U.S. values the freedom of where data can flow.*

"We put a higher value on the freedom of where the data can flow," said White House special advisor Ira Magaziner, who at the Privacy & American Business Conference here last week acknowledged that negotiations with the Europeans are deadlocked.

Europe and the U.S. have been trying to agree on practices — dubbed safe harbor principles — that U.S. businesses could follow to stay out of trouble in Europe. The U.S. has proposed seven rules, including giving individuals notice about what data is being collected about them and letting them access information about such data. But European negotiators say these rules still fall short of the privacy directive.

U.S. companies, which have been granted a grace period, are now worried that some European nations may order a cut-off of their data transmission flows if complaints about corporate practices surface.

"Our business involves transferring a lot of data out of Europe to the U.S., and we're concerned about the possible disruption of data," says Art Sackler, vice president of law and public policy at Time Warner, which is in favor of the safe harbor plan. He says Time Warner wants assurances from the Europeans that if it undertakes the expense of implementing new systems to support the safe harbor rules, the company will be safe from sanctions.

Ford Motor Company is wondering whether it can continue to send data about its European employees over networks to the U.S., says Michael Method, a global human resources and IS operations manager at the automobile company.

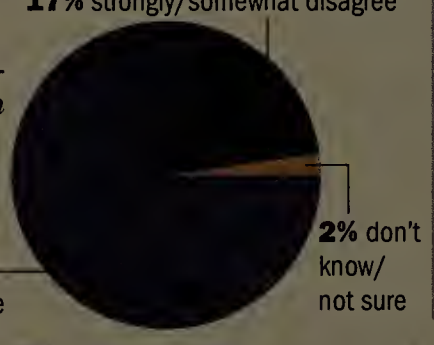
According to Method, Ford is also trying to sort out whether the analysis it routinely does on employee data for demographic purposes conflicts with the European idea that personal data can only be processed for the original purpose for which it was given.

For their part, the Europeans regard the U.S. as lax on consumer privacy protections both online and off, and see U.S. businesses as rapacious in their zeal to collect, analyze and exploit data about individuals to make a buck. ■

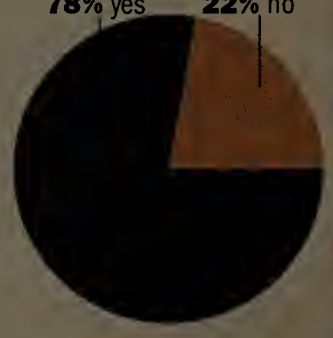
E-COMMERCE CONCERNS

A recent survey of 1,000 people found respondents are wary about the use of their personal data online.

"Have you lost complete control over how your personal information is circulated or used by companies?"



"Have you ever refused to give out information to a business or company because you thought it was not really needed or too personal?"



SOURCE: THE 1998 'PRIVACY CONCERNS & CONSUMER CHOICE SURVEY' BY LOUIS HARRIS & ASSOCIATES/DR. ALAN WESTIN

Netscape customers warily eye AOL move

By Paul McNamara

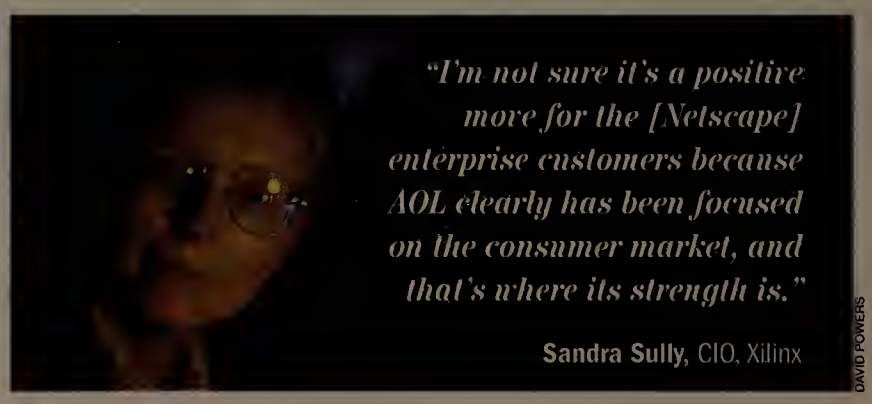
Netscape's large customers are wary but hopeful two weeks after learning that their ISP will be gobbled up by consumer-focused giant America Online.

Public and private reassurances from Netscape and AOL executives have stemmed most talk of abandonment, yet some customers who have bought into Netscape's enterprise vision are skeptical that their interests will be protected over time.

"I think they'll do it for a while, but one of the fears I have is that the SuiteSpot server products may not evolve the way Netscape had planned," says Sergio Cortez, director of standards and resource management at Litton Industries in Woodland Hills, Calif. "AOL has a different vision and strategy."

Although that consideration weighs on the minds of many Netscape customers, most are willing to give the company and its would-be buyer the benefit of the doubt, at least in the short term. "I'm not sure it's a positive move for the [Netscape] enterprise customers because AOL clearly has been focused on the consumer market, and that's where its strength is," says Sandra Sully, chief information officer at Xilinx in San Jose, Calif. "I'm not concerned, however. We're getting good support now."

A number of customers interviewed last week see Sun Microsystems' role in the pending deal as crucial to maintaining their continued satisfaction with Netscape. But details of the Netscape-Sun joint development and marketing agreement have been sketchy.



"I haven't totally figured out what the Sun involvement means and what the future support of the Netscape enterprise servers is going to be," Sully says. "I've been in contact with Netscape over it, and they said for at least right now everything remains the same; obviously, the deal isn't even closed yet."

Chris Jennewein, vice president for technology and operations at Knight-Ridder New Media in San Jose, Calif., sees significant potential in the Netscape-Sun partnership.

"Most of Netscape's enterprise software has always run on Sun servers," Jennewein says. "I think the relationship with Sun will result in more tweaking of performance in that kind of environment."

The promise of tighter integration between Sun and Netscape products does hold great appeal for customers. In fact, the deal may prevent an erosion of quality in the Netscape lineup, according to Phil Gibson, director of InterActive Marketing at National Semiconductor in Santa Clara, Calif.

"I'm a bit relieved because I was beginning to wonder whether or not the Netscape server platforms would be stable and reliable over time," Gibson says. "My perception was that that end of their business was going to be less focused as they became an Internet portal.

"With my assumption that Sun will be acquiring or at least managing that part of the business now, there could be some really encouraging integration between the Solaris operating system and the Netscape server platform," he adds.

Another customer even sees cause for optimism in what AOL will bring to the table: namely, deep pockets and a desire to exploit Netscape technology.

"By partnering with AOL, Netscape should have additional resources to continue to innovate and support their software," says Eric Wolf, technology architect for Eli Lilly's Global Internet Development Group.

"While it is encouraging that AOL has already stated its commitment to continue the open source initiatives behind [Netscape's] Mozilla, it is still too early to make any sweeping conclusions" about the deal, Wolf says. ■

Get more online:

- **Copies of the European Union Data Privacy Directive and the Commerce Department's safe harbor principles.**

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HIGH-SPEED TOKEN RING ALLIANCE

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THE MICROSOFT DIARIES

Week Seven

The Microsoft-DOJ Trial

MONDAY, NOV. 30

Microsoft lawyers pestered government antitrust economist Frederick Warren-Boulton for the fourth day, attacking his testimony in both large and embarrassingly small ways. Microsoft attorney Michael Lacovara accused Warren-Boulton of selectively highlighting documents to back up his thesis. He also gave Warren-Boulton grammar lessons by pointing out minor errors in his written testimony, such as the continuing reference of one person cited in it as "she" instead of "he."

TUESDAY, DEC. 1

The 35 pages of written testimony from Sun Vice President James Gosling released early this morning generated a welcome bit of excitement in the courthouse halls — a nice break from this, the fifth day of Warren-Boulton questioning. Gosling's claims that Microsoft set out to destroy Java created most of the buzz. Gosling testified that Microsoft has extended the Java programming language in a way that "is analogous to adding to the English language words and phrases that cannot be understood by anyone else."

Sun's James Gosling *lambasted Microsoft Java extensions.*

WEDNESDAY, DEC. 2

It was back to the Bill Gates videotapes this morning, and the Microsoft CEO's memory didn't seem to be getting better. In this segment — recorded in late August — Gates was asked if he was familiar with a civil lawsuit Sun had recently filed accusing Microsoft of violating its contract to use Java. He paused for nearly 30 seconds before replying, "Not really." Then he said with a shrug, "I read something about it on our Web site four days ago."

Gates also said he didn't recall being told Netscape's browser was a major distribution vehicle for the Java foundation classes despite Department of Justice lawyer David Boies showing him an e-mail from Microsoft bigwig Paul Maritz telling Gates of that very development.

When Gates' less-than-enlightening testimony was over, Sun's Gosling took the stand to defend his written claims that Microsoft was out to kill Java.

Gosling also backed away from Sun's "write-once, run-anywhere" marketing mantra. He said the cross-platform support is "one of many high-level goals of Java." Microsoft argued that if Java is not really cross-platform, then what's the harm in changing it to suit Windows?

THURSDAY, DEC. 3

Gosling spent his second day on the witness stand defending his company's claims about Java. In a sense, Gosling faced a trial by news media, as Microsoft attorney Tom Burt introduced a series of articles and test studies by computer publications that were critical of Sun's Java claims. Gosling disputed some of the testing results, and Boies questioned the reliability of some of the tests, saying they weren't done by scientific review.

Burt, however, said the articles were extremely relevant because Microsoft and Sun were in a "competition for the hearts and minds of developers."

— *Christine Burns*

Cable net services need work

IP telephony and Internet access are seen as "incremental businesses."

By Tim Greene
Anaheim, Calif.

The cable TV industry has a long way to go before it can deliver broadband data services as widely and reliably as traditional data carriers do.

A standard for cable modems is helping, but other issues, such as the inability of most current cable networks to support two-way data, are slowing the deployment of what could be an economical way to support telecommuters, according to experts at the Western Cable Show.

Cable modems have the potential to carry data at multimegabit speeds from homes to cable switching centers where the traffic can be dropped onto the Internet. Using encryption, the remote user can create a secure Internet link to a corporate Web site to gain access to the company LAN.

Technology demonstrated at the show supports IP telephony over cable networks, and that could be used to extend the functions of corporate PBXs from company headquarters to phones in employees' homes.

Because many cable providers are trying to sell the service to residential Internet users, the price of cable modem Internet access is low, about $40 per month.

But the recently adopted cable standard, known as data over cable service interface specification (DOCSIS), is still being implemented by modem makers. Certified interoperability among vendors' DOCSIS modems is expected by year-end.

Standard modems

DOCSIS will make it possible for customers to buy standard modems themselves rather than relying on the service provider to supply a proprietary modem. Shifting ownership of the customer modem reduces costs for cable providers and makes offering the service more attractive, according to Tom Hagopian, vice president of service provider Cablevision.

DOCSIS has been a long time coming. "Seven years ago, I first got involved in discussions about cable modems, and we still haven't reached a million customers," says Avram Miller, director of business development for Intel. "We need to spend some time wondering whether we could do better."

In addition, cable networks are plagued by other problems. Most of the existing networks still do not support two-way traffic on the cable, a requirement for broadband data exchange that could support Internet access and Internet virtual private networks between telecommuters and corporate sites. Two-way cable networks require expensive upgrades to the cable as well as hardware to transmit the data.

Cable modem boom

The worldwide cable modem market is expected to more than double this year. The U.S. and Canadian markets are leading the growth push, with 79% of worldwide shipments.

Worldwide cable modem shipments:

- 1998.....492,000*
- 1997.....214,000

SOURCE: DATAQUEST, SAN JOSE, CALIF. *Estimated

IP telephony over cable is also attractive to corporate users, but it is in its infancy. Potentially, IP telephony represents a way to extend corporate PBXs to remote users. At the Western Cable Show, major network vendors, including Cisco, 3Com and Lucent, showed IP telephony capability using some of their gear in conjunction with other vendors' equipment. But they were generally kluged configurations, not carrier-class systems.

Adding to the problem is the fact that cable operators are focused on providing television, not on providing data and telephony services. Therefore, they are more reluctant to sink money into those areas. "Telephony and Internet access were incremental businesses, and, quite frankly, are still not core businesses of the cable industry," says Mario Vecchi, vice president of broadband development for America Online.

As a result, many cable providers that are dabbling in data over their networks use dial-up modems as the return path for high-speed Internet access over the cable network. "That has limited WebTV so far," says Alan Yates, director of digital television platforming marketing for Microsoft. WebTV, which brings Internet access over cable TV sets, could benefit from that path to support interactive television shows and advertising, he says.

A panel of Silicon Valley executives told a Western Show audience that cable providers face competition from digital subscriber line (DSL) and satellite technologies, both of which can support broadband Internet access to the home. But the battle has not been as fierce as it could be, according to Miller. "The phone companies aren't investing heavily in DSL," Miller says.

Unfortunately for corporate users, critical cable network upgrades may rely on the popularity of cable Internet access among general consumers. Their demand for services will drive network improvements, Vecchi says. ■

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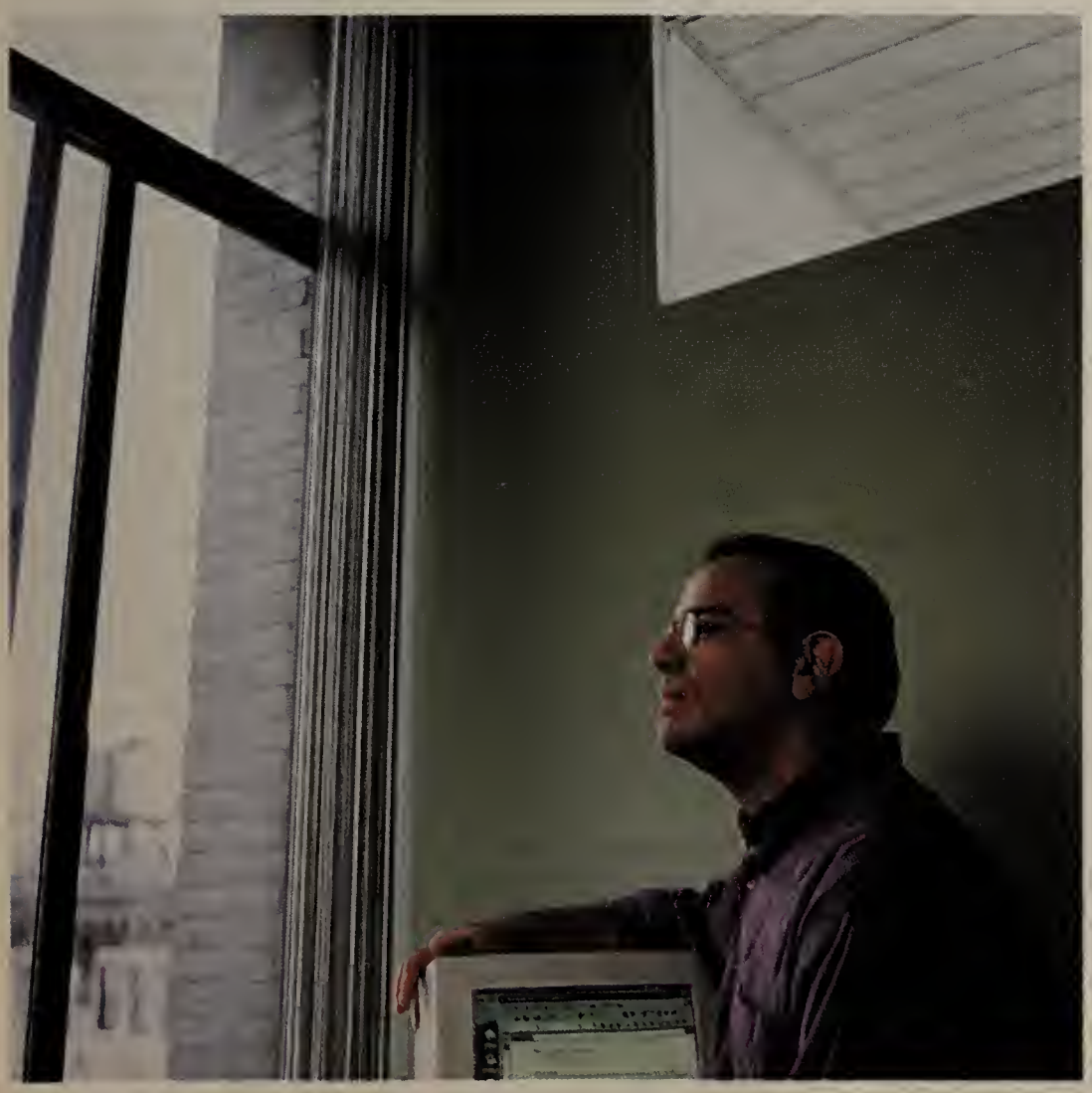

Open Text woos PC DOCS

Union would link intranet, document management software vendors.

By Paul McNamara
Waterloo, Ontario

Having built a solid reputation with its Web-based intranet and knowledge management software, Open Text last week made a bid to enter the high-end document management market by offering to buy PC DOCS.

Open Text has made an unsolicited offer to the board of PC DOCS that would exchange one share of Open Text stock for every four shares of its Toronto-based target. The bid amounts to a 35% premium for PC DOCS shareholders, Open Text says, or about $106 million total. Open Text asked for a reply by Dec. 8.

PC DOCS acknowledged receipt of the offer but declined comment pending a review by its board.

Open Text executives and industry analysts believe the proposed merger would be a good fit. With its flagship product called Livelink Intranet, Open Text claims a worldwide installed base of 2.5 million users in 3,400 corporations. PC DOCS boasts 700,000 users in 3,500 organizations, with most in the legal and government sectors.

"The products are remarkably complementary," says Tom Jenkins, Open Text's CEO. "I'd really have to stretch to find where we have competed for a customer."

PC DOCS' recent acquisition of Fulcrum's search engine technology makes it a particularly attractive target for Open Text, according to Jenkins.

"We feel there is a natural synergy between PC DOCS' document management customer base and our enterprise knowledge management product [Livelink Intranet]," he says. "It is possible for an enterprise to want to have multiple search engines and multiple document management engines," he adds. Livelink's Web-based infrastructure could be used effectively to connect these engines.

Industry experts agree that the deal makes sense, provided Open Text can handle the logistics of a third acquisition in the span of 12 months.

"This is a reasonably good move for Open Text to continue to buy installed base and add the technology within PC DOCS to Livelink," says Ian Campbell, director of collaborative technologies at International Data Corp. in Framingham, Mass. "It also gives Open Text an ability to address vertical markets by focusing the PC DOCS tools and the Fulcrum search engine on the enterprise and on specific niche areas within the enterprise."

However, Campbell wonders if Open Text may have bitten off more than it can chew.

Last June, Open Text snapped up Dublin, Ohio-based Information Dimensions, another document management vendor, from Gores Technology Group. The company also acquired Campbell Services, maker of OnTime scheduling software, in December 1997.

"My only concern is that Open Text has been on an acquisition spree," Campbell says. "So soon after the Information Dimensions acquisition, this will somewhat tax the management capabilities of Open Text. But we're pretty confident that they should be able to pull it off." ■

Dell rips open storage boxes

By Deni Connor
Round Rock, Texas

Dell beefed up its line of storage products last week with two new PowerVault systems.

The PowerVault 200S is a SCSI-based system that Dell contends is appropriate for small firms all the way up to big firms with large data center operations. The rack-mountable device can handle up to eight 7,200- or 10,000-rpm Ultra 2 SCSI drives.

Dell's PowerVault *650F and 130T storage products can be rack-mounted with servers.*

As many as four units can be grouped in the same array, offering up to 576G bytes of storage. Dell gave the 200S a "split backplane" so if one side of the backplane goes down, devices attached to the other backplane can take over the storage duties.

Pricing for the box starts at $2,000 but can reach $10,000 when fully configured.

Dell also released the PowerVault 130T, a Digital Linear Tape system that can back up one large server or a network of servers. These tape systems use a 1/2-inch tape and transfer data at 2.56M byte/sec, which is generally faster than other tape drives.

The Dell device holds up to 30 tape cartridges and four tape drives, allowing for up to two terabytes of data in a rack-mounted configuration. The PowerVault 130T is priced between $17,799 and $38,500.

Dell also upgraded its PowerVault 650F, a high-end storage device, by giving it Fibre Channel-based drives that run at 10,000 rpm and can handle from 9G to 18G bytes of storage. Each 650F can handle up to 120 drives, giving it a capacity of more than two terabytes of data.

If that's not enough, three PowerVault 650Fs can be attached to a server, increasing storage capacity to six terabytes. The upgraded PowerVault costs from $18,000 to $29,000.

One customer is ready to sign up for more PowerVault 650Fs. "My storage needs grow at 120G bytes every six months. There is a need to keep information around for two years for analysis, which is replicated to our online analytical processing environment," says Jeff Kernan, chief information officer of Lithonia Lighting in Atlanta.

Serving up servers

Dell padded the middle of its server product line with the PowerEdge 4350, a $4,943 rack-mounted departmental server. The new box is powered by two Intel Pentium II 350-MHz to 450-MHz chips and uses Intel's two-way 440GX chipset.

The 4350 includes three hot-swappable drive bays, four 32-bit PCI slots and two PCI/ISA slots, allowing customers to mix and match old- and new-style cards.

✆ Dell: (800) 388-8542

Intel nabs e-commerce firm

iCat deal brings storefront creation software and Web hosting services.

By Deni Connor
Portland, Ore.

Intel last week announced plans to acquire struggling electronic commerce company iCat. The deal is the latest in a series of moves by the chip maker to build a leadership position in the online business market.

ICat's software for crafting electronic storefronts and its Web site hosting services fit well with the other pieces of Intel's e-commerce puzzle, according to the companies, which declined to disclose terms of the deal.

Intel last year teamed with SAP AG to form Pandesic, a company that hosts Web sites for small and mid-size businesses.

Earlier this year, Intel invested about $5.6 million in Open Market, a maker of products that handle credit card transactions over the 'Net. Intel also has minority investments in e-commerce firms VeriSign and CyberCash.

Intel is itself a prime example of an e-commerce merchant. The company said recently that it is now selling billions of dollars worth of goods online.

As for its e-commerce product and services portfolio, Intel is just trying to get a piece of a fast-growing market.

"Intel is investing because e-commerce is going to be a $300 billion market by the end of 2002," says Geoffrey Bock, senior consultant with Patricia Seybold Group in Boston.

Of course a booming e-commerce market bodes well for Intel processor sales as well. After all, the more people conducting business online, the more demand there will be for PCs, many of them powered by Intel chips.

Bock says the iCat deal will enable Intel to diversify its e-commerce product portfolio. Whereas Open Market's strength lies in serving big businesses, iCat has been stronger in the small and medium-size business markets, he says.

ICat, the recipient of $28 million in venture capital, proved ripe for acquisition in the wake of an unsuccessful transition from a software focus to a services focus.

Company founder Craig Danuloff recently resigned as CEO to make way for a new management team. The company has also cut 20% of its work force, leaving 100 employees in its Seattle offices. ■

PROFILE: ICAT CORP.

Founded: 1993
Headquarters: Seattle
Products: Electronic storefront and merchant server software, as well as Web hosting services.
Management: Craig Danuloff, chairman; Jamie Miller, president and CEO.
Employees: 100
Fun fact: The imaginative name iCat is derived from Interactive Catalog Corp.

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So, when you choose Windows NT Server, you prepare yourself for the changing needs of today's networks.

Groups work to speed 'Net

By Sandra Gittlen and Denise Pappalardo
Orlando

At the Internet Engineering Task Force meeting, engineers are driving new standards that will make users' connections to the Internet faster and more predictable.

The IETF will form working groups at its triannual meeting here this week to build the next version of the World Wide Web's connection protocol — HTTP — and to examine virtual private network (VPN) issues.

The HTTP-Next Generation (HTTP-ng) group will evaluate how to advance the current HTTP setup protocol to handle more than one connection at a time. In a draft to be presented at the meeting, HTTP-ng creators, including Xerox Palo Alto Research Center researcher Bill Janssen, say HTTP-ng will support 126 simultaneous connections. The boost will let users download pages faster and perform several simultaneous downloads from Web pages without having to open a new browser.

The new version of HTTP, which replaces the current HTTP 1.1, will also let net administrators manage Web server traffic behind firewalls, according to Janssen. He says he expects the specification, already approved by the World Wide Web Consortium, to be finalized by the end of next year.

The IETF will also form the VPN Working Group to address the growing confusion about VPN architectures. The group will define a VPN framework for ISP and enterprise networks, including routing and addressing, security, traffic engineering and management.

Back to QoS

Members of various quality-of-service working groups are hoping some standards that have been at the center of past QoS debates will be finalized at this meeting.

According to Kathleen Nichols, co-chair of the Differentiated Services Working Group, Diff-Serv is ready to be finalized. Approval of the specification, which outlines the level of priority packets receive, "will let vendors start making Diff-Serv-compliant equipment," she says. Diff-Serv and a proposed label-switching protocol, which routes packets through a net based on priority labels, have been stumbling blocks for the implementation of QoS in ISP nets. ■

CORRECTION

In the "Intelsat's intranet gambit" feature that ran in the November issue of *Intranet,* we misidentified one of the photo subjects. Pictured on the table of contents and page 14 are Intelsat's Ramu Potarazu, vice president and CIO, and Conny Kullman, CEO and director general.

ASICs

Continued from page 1

market research firm in Boston. "Firewalls are going in front of Web server farms, they're getting bombarded with megabytes and megabytes of traffic, and they can't keep up." ASICs can handle the speeds, and mass production makes them inexpensive enough to build into firewalls and other net gear, he says.

SPECIAL REPORT: Network processors

RapidStream, a San Jose, Calif., start-up, is planning to debut early next year with chips designed to enforce policies on networks. The chips will ensure that high-priority traffic gets through a network quickly; the chips will also govern access to net resources. RapidStream will sell the chips to equipment vendors to be included in routers, firewalls, switches and NICs.

"Firewall software can interpret policy, but at a dog-slow speed," says Vince Liu, president and CEO of RapidStream.

RapidStream isn't alone. Mountain View, Calif.-based NetBoost by year-end will ship a hardware "policy engine" composed of a custom ASIC and other function-specific chips. Software developers can adapt their policy software to take advantage of the specialized, high-speed design to make firewalls or intrusion detectors.

Similarly, NetScreen Technologies of Santa Clara, Calif., this month begins shipping a box for performing firewall functions and encrypting data for transport over virtual private networks. The NetScreen-1000 will be able to encrypt using the Digital Encryption Standard at gigabit rates.

What is causing this revolution in the way network hardware is being built? Partly, it's the demand for products that can keep up with Fast Ethernet and Gigabit Ethernet. Firewalls and other network gear are often built atop PC processors. "People are hitting the limitations of what the software can do in a PC," says Richard Hanke, NetScreen's marketing director.

But there are also technological advances at work. Hanke says there are tools available that vendors use to test ASIC designs before any processors are manufactured, keeping the development cycle to six months.

Plus, most ASIC vendors are making chips with memory embedded in the chip. This helps erase one of the traditional limitations of ASICs: inflexibility. In the past, once an ASIC was created, it couldn't be changed. Now, ASIC start-ups are designing memory into chips so companies can update the chips with new policies.

In recent years, ASICs have been used in basic LAN switches, Layer 3 switches and network cards. In those products, flexibility is not an issue because more enterprises have standardized on Ethernet and IP.

One effect of growing ASICs usage has been that the prices for ASICs and the devices employing them have plummeted. For example, hubs and NICs have become commodities. Some of the least expensive 10/100M bit/sec Ethernet switches cost less than $100 per port, down from about $250 per port just a year ago.

THE ASIC EFFECT

As ASIC shipment volumes have boomed, chip vendors have been able to lower prices — and so have vendors building ASIC-based switches.

Rising ASIC shipments . . .
Total worldwide shipments of LAN switch ASICs and related processors.

. . . have contributed to lower switch prices.
Average price per port for LAN switches worldwide.

SOURCE: DATAQUEST, SAN JOSE, CALIF.

A group planning to go public early next year is trying to take this commoditization to its logical conclusion. The group, called Common Switch Interface, plans to define a standard method for communicating between elements within a switch. Specifically, the standard will designate a method for communicating between a switching fabric and microchips tailored to networking (see story, left).

With silicon getting less expensive and making its way into every part of networking, NIC vendor Phobos of Salt Lake City is seeking to push Layer 3 switching technology to the desktop. Phobos sees an opportunity to put routing and switching functions into ASICs on the NIC, says Rick White, the company's CEO.

Instead of centralizing those functions in the middle of the network, in the future, the edge devices would have all the intelligence, and the middle of the network would be turned into "a glorified patch panel," he says. But White acknowledges this vision of the network is still years away from reality.

In any case, the proliferation of microchips in network hardware means that speed won't be an issue. Your bottleneck might be in a WAN connection or in a computer system — but it shouldn't be in the LAN. ■

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ASICs BASICS
Need a primer on ASICs?
Turn to *page 51.*

Group's aim is cheaper switching

The Common Switch Interface (CSIX) group says that standardizing communication between elements within a switch would enable vendors to develop products more quickly and cut costs.

Vendors could still differentiate their products through features, performance and price, says Colin Mick, CSIX organizer and principal of The Mick Group in Palo Alto, Calif.

CSIX is just getting started. The group is finishing the first draft of its specification and hopes to have it completed by the middle of next year. Then it will try to get the specification standardized through the IEEE.

The group has only three members at this point, all chip makers: Vertex Networks and founders Power X and XaQti.

CSIX is trying to convince major network equipment vendors to sign on. Vendors that may benefit will be the ones that recognize that network equipment is becoming a commodity, says Samba Murthy, vice president and co-founder of XaQti. While some may want to continue proprietary designs, Murthy says that notion is outdated.

"The bottom line is this isn't rocket science anymore," he says. "Consistency is more important."

— Jeff Caruso

And what about tomorrow's network? Or tomorrow's Windows NT Server?

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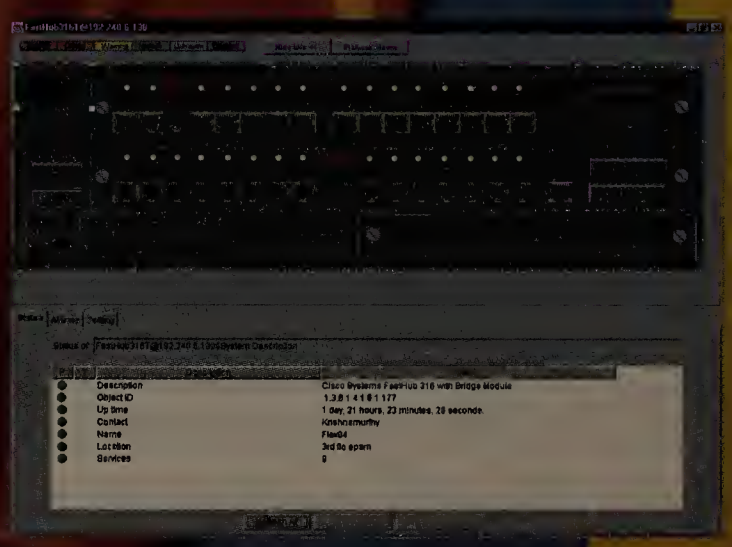

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Briefs

■ **Allied Telesyn** *has rolled out a line of* **10/100M bit/sec Ethernet switches** *that include from four to 24 ports.*

Allied Telesyn's FS700 line *includes switches with up to 24 ports.*

The FS700 line consists of four new switches. The AT-FS724 is a 24-port device targeted at workgroups. The AT-FS718 features 16 10/100 ports and two optional 100M bit/sec uplinks for backbone and server connectivity. The AT-FS704 and AT-FS709 are desktop switches that sport four and nine 10/100 ports, respectively. The AT-FS724 costs $1,639; the AT-FS718, $1,259; the AT-FS704, $399; and the AT-FS709, $755.

© Allied Telesyn: (408) 730-0950

■ **3Com** *last week released its* **OfficeConnect Fast Ethernet 10/100 network interface card** *for small and home offices. The card, priced at $69, lets small office/home office users connect PCs to share files, software and peripherals, including printers and fax machines.*

The OfficeConnect card works with PCs running on Windows 95, 98 or NT. A CD-ROM uses graphics to help users set up and install the card.

© 3Com: (408) 764-5000

■ **Advanced Micro Devices** *this week will unveil plans to embed in its Ethernet controllers monitoring technology that can alert Computer Associates systems management software of problems within a PC. The AlertIt technology will notify the software when a PC is too hot, the machine's cover is open or a boot failure occurs. The capability will be free in controllers. AlertIt will be available in the first half of next year.*

Here come the eight-way Xeon servers

Vendors prepare their eight-processor server offerings; early benchmarks are encouraging.

By Deni Connor

Vendors are readying eight-processor Xeon servers that early benchmark scores show will outperform their four-way counterparts.

Performance among eight-way servers depends largely on two fairly new Intel technologies: the Profusion chipset and PSE-36, also known as the Intel Extended Server Memory Architecture.

The Profusion chipset, which has been adopted by most major Intel server vendors, handles memory and I/O processing. Corollary, a subsidiary of Intel, is fabricating the chipset under a codevelopment deal between Intel and Compaq. Intel will contribute the memory controller to Profusion, while Compaq will add I/O processing capabilities that will enable the chipset to move from 64-bit 33-MHz PCI to 64-MHz PCI technology, harnessing greater processing power.

PSE-36 is a 36-bit memory addressing technology included in Xeon Pentium II processors. Without PSE-36, Windows NT and Windows 2000 wouldn't be able to address beyond 4G bytes of memory.

Although most major Intel server vendors have pledged to use Profusion and PSE-36 in their machines, support from major applications vendors, such as Baan and SAP, may not appear until the second half of 1999.

Good benchmarks

Preliminary benchmarks of Oracle8, which has been optimized for PSE-36, show a two- to four-fold performance gain when memory size increases from 4G to 8G bytes. Oracle may be the first application vendor to use PSE-36 in its product.

On the hardware side, Hewlett-Packard is seeing benchmark scores for its eight-way NT servers that are up to 70% better than those for its four-way servers (see graphic). In the first half of 1999, HP will ship a follow-up to its NetServer LXr 8000 box based on Profusion.

Compaq says it is waiting to benchmark its eight-way Xeon Pentium II servers in the "right circumstances": separate tests with databases and applications from Microsoft, Oracle, PeopleSoft and SAP. Compaq expects to start tests within the next couple weeks. The server maker plans to ship its eight-way models in the first quarter of 1999.

IBM plans to use the Profusion chipset on an eight-way edition of its NetFinity server scheduled to ship in the second half of next year. Data General said the company's four-way AV8700 server will be available in an eight-way version.

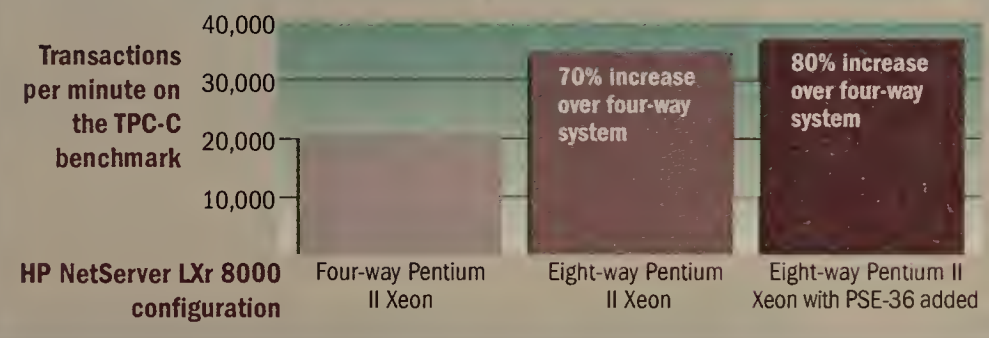
Dell and Unisys will use the high-speed Profusion chipset to power their eight-way offerings, but the companies were reluctant to comment further.

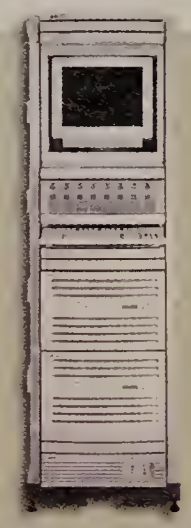
Glenn Bonner of the Mirage Resorts in Las Vegas says he will buy eight-way Dell systems as soon as they become available.

"You'll see us move to eight-way servers," he says. "We are running 450 financial users on Pentium Pro four-way servers and are starting to see some performance degradation with Baan's SQL 6.5." ■

WILL EIGHT BE ENOUGH?

New servers powered by eight Pentium II Xeon chips promise users big performance gains over four-way systems. HP, for example, says its use of Intel's Profusion chipset and PSE-36 memory technologies can combine to give servers up to an 80% performance boost.





HP NetServer LXr 8000

OnStream debuts low-cost gigabyte tape storage

By Deni Connor

Longmont, Colo.

Start-up OnStream, Inc. has introduced a pair of removable disk storage systems that address customers' growing network backup requirements and are priced in line with low-cost servers.

OnStream's SC30 and SC50 digital tape drives are SCSI devices that fit into Windows NT and Windows 95/98 servers. The products support up to 30G and 50G bytes of storage, respectively, and boast data transfer rates of up to 2M byte/sec.

The tape drives are designed to back up small to large network servers in less time and at a lower cost than other tape drives currently available.

The SC30 and SC50 cost $499 and $600, respectively. Tape cartridges cost $40 for 30G bytes of storage and $50 for 50G bytes. Similar DDS-3 tape drives back up information at 1M byte/sec and cost $1.29 per gigabyte, while digital linear tape drives back up information at 1.5M byte/sec and cost $2.80 per gigabyte.

The SC30 and SC50 drives use a patented technology, dubbed Advanced Digital Recording, that reads information across all eight tracks of a tape at once, increasing data reliability and serving up data faster. Error Correction Code bits placed across each track at different locations allow data to be reconstructed even when bits on individual tracks are missing.

A simplified servo system allows the drives to detect and avoid defects on the tape. Its patented design reduces the cost of the tape drive, OnStream claims.

OnStream drives ship with OnStream Echo, backup and file management software that allows users to access files directly from tape.

"In terms of capacity, performance and robustness, OnStream's digital tape drives present a compelling value option," says Bob Amatruda, senior analyst of tape and removable storage at International Data Corp., a Framingham, Mass., market research firm. He adds that the company's Windows Explorer-type interface for its drives simplifies management of multiple types of storage media.

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In-Site: LESSONS FROM LEADING USERS

User gets bad to the backbone with Gigabit Ethernet

By Jeff Caruso
Boca Raton, Fla.

It is the ultimate in bursty traffic: more than 100 servers containing tens of thousands of Web sites doing a daily backup to a storage array.

It used to take up to 16 hours each day for the process to trickle through the Fast Ethernet pipes at HiWay Technologies, a Web site hosting firm. With plans to expand to up to 2,000 servers, the provider needed something faster.

The company had an idea: build a separate infrastructure, identical to the existing one, dedicated to performing daily data backups. This plan would have required a second network card in every server to hook into a second Fast Ethernet backbone. HiWay also considered installing Fibre Channel, but that also would have required a separate network.

Instead, HiWay decided to replace the Fast Ethernet backbone network with Gigabit Ethernet and send backup traffic over the same lines as other data. The company didn't have to install additional cards in its servers, and at $120,000, this approach cost one-third as much as setting up a separate network, says David Hartman, manager of network systems at HiWay.

Last June, the company installed a Gigabit Ethernet backbone anchored by a pair of Foundry Networks' BigIron 4000 switches. A handful of Foundry FastIron switches link to the backbone and connect the servers through their 24 Fast Ethernet ports. Because these connections don't use Gigabit Ethernet, HiWay didn't have to upgrade the cards in the servers.

It now takes four to six hours to back up the company's 125 servers. That's still too long, Hartman says, but the bottleneck isn't the network.

The problem is the server that manages backups, a Silicon Graphics Origin 2000 machine connected to the backbone via a Gigabit Ethernet card. "We got rid of the network problem and pushed it to the CPU on the Origin 2000," Hartman says.

The server moves at a speed of only about 300M bit/sec, and Hartman is looking for Silicon Graphics to get that rate increased to about 750M bit/sec by tweaking the network card and improving the speed of its server. Hartman's goal is to back up all the servers in just a couple of hours.

Backups are really the only reason HiWay chose Gigabit Ethernet. Without the bursts caused by the high-volume backups, less than 10% of the backbone is used, Hartman says. Because the company hosts Web sites, most of the traffic is outbound to the Internet.

"The traffic in and out of the Internet doesn't warrant Gigabit Ethernet," Hartman says. At peak times, the traffic level reaches only about 70M bit/sec through HiWay's three T-3 lines to ISPs. But installing Gigabit Ethernet gives the company some headroom for at least the next three years, Hartman estimates.

Right now, HiWay doesn't use any of the Layer 3 functions of its BigIron switches. But one reason the company chose Foundry equipment is that it supports Open Shortest Path First (OSPF) routing. OSPF is a routing protocol that can adapt quickly to network changes.

Today, HiWay manually sets up static routes to its servers via the Cisco 7505 routers it uses to connect to the Internet. But that will change. Using OSPF, the servers will be automatically discovered, reducing the administrative burden of manually defining them, Hartman says. This will be critical as the company adds hundreds of new servers.

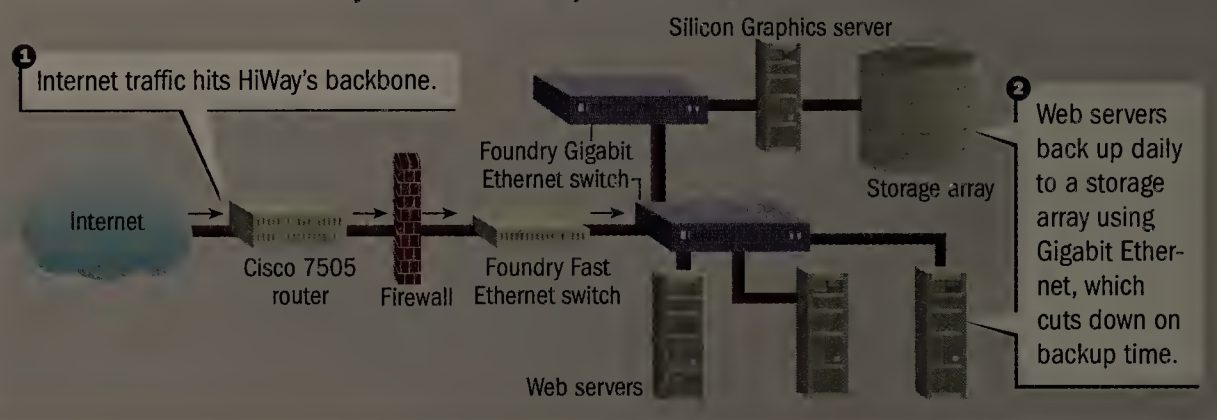
HiWay also plans to use Virtual Router Redundancy Protocol, a standard that defines how a backup router can automatically take over when another router fails. This way, if HiWay loses one of its two Layer 3 switches, the second can pick up the slack.

But the company hasn't had much trouble with outages. In fact, of the switches it uses, only one port on one of the switches has failed.

"That's unbelievable as far as I'm concerned," Hartman says. ■

BACKUP FROM HELL

HiWay Technologies has upgraded its Web site hosting backbone to Gigabit Ethernet from Fast Ethernet, a move that has reduced daily Web server backups from 16 to about 4 to 6 hours.



New tool helps users navigate Novell directories

By Christine Burns
Orem, Utah

Netoria, Inc. later this month will ship a directory management tool designed to give network administrators greater control over information stored in Novell Directory Services (NDS) trees.

Netoria's ScheMax is a content management tool that gives network administrators a graphical view of a company's entire NDS schema, as well as the ability to easily modify the schema.

PROFILE: NETORIA, INC.

Headquarters: Orem, Utah

Founded: 1996 in Australia by two Australian Department of Defense IT consultants.

Primary business: Novell Directory Services tools, such as SFLogin for simplifying NDS network logons, and ScheMax, new software for NDS content.

Financials: Privately held. Total revenue in 1997 was $570,000; 90% of all sales were completed via the Internet.

Fun fact: When the company relocated to Utah last year, sales in its native Australia increased.

Defining objects

A directory schema is a blueprint that defines every object stored in a directory database. For example, each user object is defined by specific components — also called attributes — such as name, phone number or e-mail address.

"Novell has done a lot to let its customers extend the NDS schema in any direction they want," says Phil Montgomery, a co-founder of Netoria, which relocated to the U.S. from Australia last year to be closer to its target market. But Montgomery contends that Novell's own Schema Manager tool is a text-based utility that is cumbersome to use.

Users agree. "I could certainly use a single tool that lets me see how everything in my NDS schema hangs together," says Jeff Kwasnieski, a network support manager for the Cleveland Clinical Foundation, a regional medical practice that has a 12,000-node NetWare 4.X network.

"The tools that Novell gives me now only give me limited snapshots of my directory lay-out at any one time. And changing your schema is a long, drawn-out process," Kwasnieski says.

Modifying schema

ScheMax, which supports any version of NDS running on NetWare 4.X, 5.0 or Windows NT, allows managers to edit the schema by adding directory object classes and attributes. Using the product wizard that is included with ScheMax, an administrator can modify the schema offline so that extensions can be tested before being applied to the live NDS tree.

Additionally, ScheMax lets a network manager create snap-in utilities for Novell's administration tool to help manage the NDS data. The snap-ins are stored in the directory and are accessible to users based on previously established security rights.

Pricing for ScheMax ranges from $11.50 per node for networks with 50 to 100 workstations to $3.45 per node for networks with 3,000 to 5,000 nodes.

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WIRED WINDOWS

America Online, Netscape and you

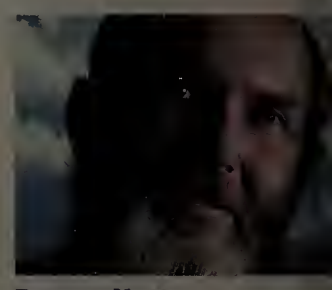
The America Online/Netscape merger was on my mind over the Thanksgiving weekend as I speculated on who was giving thanks for the buy-out, and who wasn't. The big winner is Microsoft.

For one thing, AOL's CEO Steve Case plans to stick with an Internet Explorer front end for his company's network. For another, Netscape browsers will continue to evolve, but development will be done mainly through an open source software process in which Netscape's product will be relegated to the browser of choice for Linux users, diehard Internet veterans and the Anything But Microsoft crowd. I expect businesses to drop Netscape's browser out of concern that the software will no longer be supported.

Under the AOL/Netscape pact, Sun gets distribution rights to Netscape's server software, which will most likely undergo changes to make it more Java and Solaris friendly. Other Unix vendors get caught between a rock (Sun) and a hard place (Microsoft), but quite possibly will end up pushing a version of the free Apache Web server. Should these Unix vendors do that, it's possible that the open source software version of Netscape's Web client will continue to grow as these vendors take on the job of supporting their version of the browser.

Left out in the cold is Novell. Now Novell's CEO, Eric Schmidt, needs to rely on his old friends at Sun to continue to produce a Web server for NetWare.

A lot has also been made of the "culture clash" between northern Virginia's AOL and Silicon Valley's Netscape, but I'd love to see the AOL mind-set come to the valley. AOL's greatest strength has been the ease-of-use and user-friendliness of its network.



Dave Kearns

AOL came to dominate the online and dial-up markets because it gave the majority of people what they wanted with little fuss. Silicon Valley's lack of user-friendliness is epitomized in its newest attraction, The Tech Museum of Innovation. In a perfect triumph of form over function, it has large, open areas (with no exhibits) for people to mill about in, while cutting bandwidth in the display areas so that a person needs to turn sideways to move between walls, pillars and display cases. It's more of a monument than a museum. A monument, that is, to the Valley's "we know best" attitude toward users.

The software industry needs more people like Steve Case.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@vquill.com.

Tip of the week

If you're interested in usability, there's a new book out by Donald Norman, the guru of usability, that you should read. The Invisible Computer: Why Good Products Can Fail, the Personal Computer is so Complex, and Information Appliances are the Solution *from MIT Press is an excellent follow-up to Norman's classic* The Design of Everyday Things. *It should be required reading for all of the network industry's product managers.*

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Briefs

■ **NetReference** *last week announced an online service designed to help users* **build large-scale networks.** *The NetReference Architecture for Networks service lets subscribers dial in and receive a variety of information, on topics from network planning and design to technical products. For an undisclosed annual fee, users get password access to a Web-based network architecture ref-erence service, a monthly newsletter and advice from NetReference consultants.*

Passmore *offers net-building help on the 'Net.*

The project is headed by industry guru David Passmore.

✆ NetReference: (703) 742-3400

■ **Tivoli Systems** *last week unveiled an expert system dubbed Tivoli Manager for Network Connectivity. Unlike Computer Associates' Neugents system, which uses artificial intelligence technology to predict possible systems failures,* **Tivoli's management program diagnoses a problem** *after it occurs.*

The program creates a table with network-connected devices and a set of conditions or symptoms the devices generate when there is a problem. Because network devices manifest unique symptoms, the program can correlate a symptom to a problem and quickly identify the root cause of the network failure, the company claims. The information is then forwarded to the Tivoli Enterprise Console.

Tivoli Manager for Network Connectivity 1.0 is available now for $25,000 per server.

✆ Tivoli: (512) 794-9070

In-Site: LESSONS FROM LEADING USERS

Bentley College graduates to a virtual private net

By Tim Greene
Waltham, Mass.

How do you build a remote access network for a constantly changing group of 10,000 users who work from a variety of computer platforms and travel all over the world?

Bentley College's Tom Boerman found the answer in an Internet virtual private network (VPN) that's being used to access Bentley servers. "Not only is the network accessible from any place that has an Internet connection, but the VPN was relatively easy to install and inexpensive to administer," Boerman says.

This is not to say that putting the VPN in place was without difficulties. Among Boerman's challenges was establishing a help desk for end users and figuring out why certain ISPs' networks blocked access to the VPN.

Overall, the VPN has lived up to expectations, says Boerman, the school's network services manager. Eight months into the project, he is also well under the $70,000 budget that was set aside to fund the first year.

Boerman's task was to have a remote access network up and running by Sept. 3, when school opened. When Boerman got the assignment, Bentley only had 40 direct-

See **Bentley**, *page 30*

SHAWN HENRY

New Nortel service to support integrated nets

By Jim Duffy
Santa Clara, Calif.

Nortel Networks has announced a service and support program to help users manage integrated data and telephony networks.

The program splits service and support delivery between Nortel and its business partners, such as value-added resellers and other indirect resellers. The program covers switching and routing equipment from Nortel's Enterprise Data Networks division and its Bay Networks line of business.

The new program is designed to deliver direct service and support to Nortel's largest enterprise accounts while handing off smaller accounts to business partners.

This segmentation is intended to help Nortel and its business partners alleviate service revenue conflict, which was common until now, says Rusty Walther, director of strategy, planning and programs.

The new program is also a way for the company to reduce costs by handing off some service and support overhead to business partners, observers note.

Components of the program include the Named Account service portfolio and the Business Partner service model. The Named Account portfolio is targeted at Nortel's 300 largest accounts and has an annual service revenue of $200 million, Walther says.

The Named Account program offers product life cycle services, from assessment and design through maintenance and optimization. The program includes tiered services based on network size, complexity and service investment.

Pricing is determined by product and network complexity, Walther says.

"These offerings . . . should actually predict and avoid network downtime," says Dominic DelDuca, senior director of network strategy and deployment for pharmaceuticals supplier Merck & Co. in Whitehouse Station, N.J.

Under the Business Partner program, meanwhile, all business partners receive basic "Safety Net" services for their entire installed base. Safety Net services provide nine hour per day, five day per week (9-5) limited phone support, 10-day "return to factory" hardware replacement, and software updates via online systems.

Authorized Service Solutions Partners receive a higher level of support, including 9-5 unlimited phone support and next-business-day advance replacement hardware.

The highest level of authorization is the Premier Service Partner program, with 24-7 enhanced phone support that includes priority access to senior engineering resources, 24-7 next-day advance replacement hardware and enhanced online access that includes software upgrades, bug reports and more.

Analysts say Nortel's new service program could give the company a competitive boost.

"If it caters enough to this channel then supposedly it'll gain some kind of competitive advantage," says Jonathan Haller, an analyst at Current-Analysis in Sterling, Va.

"Cisco is viewed as being a shark and is more than willing to step on some of its resellers toes," Haller says.

Nortel will begin moving current service customers and business partners to the program in January 1999.

✆ Nortel: (408) 988-2400

Elements of Nortel's service strategy

Named Account service

- Direct service targeted at largest enterprise accounts.
- Includes installation, integration, maintenance and consulting services.
- Pricing based on product service complexity.

Business Partner service

- "Safety Net" support for business partners through phone service, online software updates and 10-day hardware return policy.
- Service Solutions Partners receive 9-5 unlimited phone support and next-day hardware replacement.
- Premier Service Partners receive 24-7 phone support, hardware replacement and online software bug fixes.

Get more online:

- **See how network hardware vendors ranked in our 1998 service and support survey.** www.nwfusion.com

Bentley

Continued from page 29

dial ports into the school network, and the ports were available only to select faculty and staff.

That fact didn't fit with the image the business college was trying to fit with its slogan "Business, People and Technology," nor with its location here in the middle of the high-tech belt ringing Boston.

Boerman's assignment was to make the university's networks accessible to all Bentley students, faculty and staff. He'd have to take into consideration that these users would be calling in from off-campus housing, hotels while traveling and even from other countries while on semester breaks.

Boerman kept the remote client specifications as basic as possible so most users can dial in with PCs they already owned. The only requirements are that end users have machines running Windows and outfitted with Internet access.

Bentley provides end users with two floppy disks. They use these to load Shiva VPN Client software that lets remote PCs talk to an on-campus Shiva LanRover VPN Gateway. So far, Shiva has no client for Macintoshes.

Bentley also uses a Remote Authentication Dial-In User Service (RADIUS) server, included in Shiva's management software, to authenticate and authorize VPN users. The client and the gateway use 56-bit encryption to secure information as it crosses the Internet.

Users connect to the Internet at whatever speed their home hardware allows, whether it is a 28.8K bit/sec modem or a multimegabit cable connection. Once the VPN client establishes a link with the gateway, the end user is asked his name and password before gaining access to databases, e-mail, paid services such as Lexis-Nexis and other Bentley resources.

Challenges crop up

Boerman was surprised to learn that users had trouble accessing the VPN through certain ISPs. For example, users of the Prodigy Classic ISP service could not get through because Prodigy Classic does not use TCP/IP to connect with its customers. The VPN requires TCP/IP, so Prodigy users had to switch to another ISP.

America Online — its browser in particular — posed another problem. Bentley customers using AOL to connect with the college VPN could not access Lexis-Nexis and other Web services for which Bentley pays.

It turns out that the AOL Web browser delegates the actual browsing to a proxy server in the AOL network. When the proxy server contacts a Bentley Web service, the service denies access because the proxy server IP address is unauthorized. Boerman says the solution has been to use Netscape Navigator or Microsoft Internet Explorer rather than the AOL browser.

Beyond technical problems, Boerman also had to set up a help desk for remote users. The college help desk — about eight people — is trained only to handle problems with Bentley's internal network. A new set of problems ranging from modems and ISP troubles to VPN software installation questions would have crushed the help desk, Boerman says.

But help came from a surprising source: Atrion, the reseller that sold Bentley the Shiva VPN gateway. Normally, Atrion's help desk services only IS staffers such as Boerman, not end users. But for $999 per month, Atrion agreed to set up an 800 number dedicated to Bentley remote users and to staff it from noon to midnight. The fee buys five hours per month of help desk time, and so far Bentley has stayed under that limit, Boerman says.

Pacing the rollout

Bentley told students, faculty and staff about the VPN in September, and has allowed them to sign up for it at will. But to keep usage low enough to work out any bugs, the school has not made an attempt to sign up everyone during the first semester.

So far, with just a single announcement, 600 users have signed up and 750 more are expected to get on board at the start of the spring semester, Boerman says.

Before choosing Shiva gear to anchor the VPN, Boerman considered hardware from AltaVista and VPNet. But AltaVista's lack of RADIUS support would have made password entry a nightmare, he says. AltaVista and VPNet client software also had trouble linking with the AOL network. That is because AOL client software installs AOL's own dial-up adapter software in the remote PC, and that adapter could not synchronize with AltaVista's or VPNet's VPN boxes. AOL support is key, he says, because as many as 40% of the school's users are on AOL.

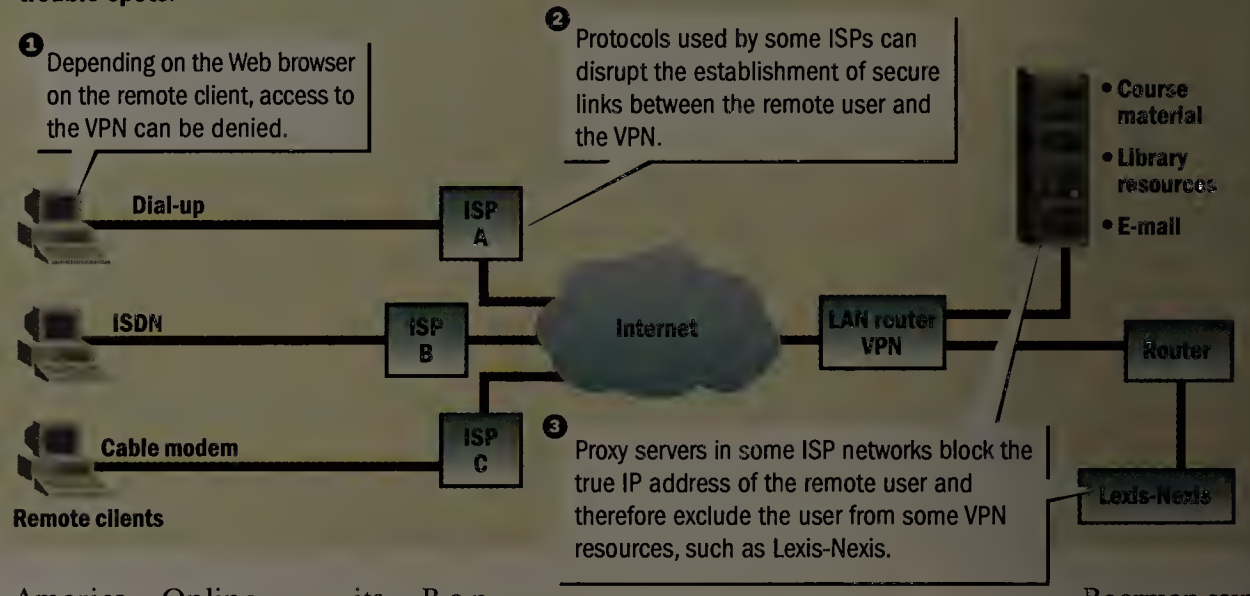
Boerman says the college would like to see Shiva, which is in the process of being acquired by Intel, add several features to its VPN gateway. Features on Boerman's list are reports that detail peak hours of use, number of simultaneous users and how many times users try but fail to connect to the VPN. He also wants to straighten out discrepancies in records kept by the RADIUS server and VPN gateway regarding the identities of end users logging on to the VPN.

The bottom line, however, is that the VPN has lived up to its expectations. Now that some of the kinks have been worked out, the network requires little management.

"It's an easy thing to baby-sit," he says. ■

BENTLEY LEARNS ABOUT VPNS

Bentley College in Waltham, Mass., got a crash course in virtual private networks and discovered some trouble spots.



Free NEC code to ease IPv6 transition

Company also will spin off its U.S. telecommunications division.

By Rob Guth
Tokyo

NEC is offering free source code for software that enables existing hardware to connect to networks running the future version of IP.

NEC's IPv6/IPv4 Translator software acts as a translator between IP Version 4 — the current protocol underlying the Internet — and IP Version 6, which is gradually being deployed in its place.

IPv6 is expected to vastly increase the number of available IP addresses as well as ease network management. Plus, the translator has built-in encryption and quality-of-service features not found in IPv4.

The protocol was initially seen as the answer to a growing shortage of IP addresses, and many in the Internet community pushed for a rapid deployment of IPv6.

However, the fear of an IP address shortage seems to have subsided as corporations grapple with more pressing challenges, such as how to deal with the Year 2000 problem. Network hardware, software and applications will have to be updated to the new protocol, a procedure NEC says its translator would help accomplish.

NEC will offer the software for free on its Web site (www.socks.nec.com). The company says it is already using the translator on a gateway linking its IPv4 networks and a test network based on the new protocol.

The translator runs on Unix and Windows operating systems and supports any network interface card, the company says.

NEC will present the technology at this week's Internet Engineering Task Force meeting.

New spinoff in Virginia

In other NEC news, the company is looking to boost its presence in the network equipment market by spinning off its U.S. telecommunications operations into a separate company.

NEC America, which currently manages the telecom business from Melville, N.Y., this month will set up NEC Eluminant Technologies, Inc. with an initial investment of $10 million, NEC executives say. The company will be located at an unspecified site in Virginia.

Ex-AT&T exec at helm

The wholly owned subsidiary of NEC America will oversee a range of network and telecom equipment sales, and development and manufacturing, including digital subscriber line access equipment, an NEC spokesman says.

The new company will have 150 employees, including NEC America staff and new hires, he says.

Curtis Benton, formerly of AT&T, will serve as the unit's president and CEO, the spokesman says.

NEC can be reached at 81-(0)3-3798-6511.

Guth is a correspondent with IDG News Service's Tokyo bureau.

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Cisco grows access router family

By Jim Duffy
San Jose, Calif.

Cisco has rolled out two additions to its 2600 line of access routers that will let users route between 10/100M bit/sec Ethernet virtual LANs.

The 2600 series routers support Ethernet, Fast Ethernet, token-ring and mixed LAN environments. The routers also support multiservice data/voice integration, which allows users to consolidate data, voice and video traffic to reduce costs, enable new business applications and improve network efficiency, Cisco says.

The modularity of the 2600 series lets users add services and capacity as their needs change, protects existing investments and simplifies the deployment of new network services, Cisco claims.

Cisco's 2600 series routers *support multiservice networks.*

The Cisco 2620 and 2621 access routers are the first in the 2600 line to support 10/100 autosensing Ethernet and VLAN capabilities. They are targeted at branch offices and mid-size businesses.

Cisco also announced a data compression option for the 2600 series that allows customers to reduce recurring WAN costs. Firewall capabilities providing secure access to the Internet or virtual private networks (VPN) were also added.

The Cisco 2620 and 2621 feature one and two autosensing 10/100 Ethernet ports, respectively. Both models also have slots for two WAN interface cards (WIC), one network module and an internal Advanced Integration Module (AIM).

Old WICs not outdated

For investment protection, the Cisco 2620 and 2621 support the same WICs that are available for the Cisco 1600 series, 2600 series, 3600 series and the recently announced Cisco 1720 VPN access router. These modules include serial, ISDN Basic Rate Interface and integrated CSU/DSU options for primary and backup WAN connectivity.

The Cisco 2620 and 2621 support software-based data encryption, data compression and inter-VLAN routing based on Cisco's Inter-Switch Link trunking protocol for Fast Ethernet.

The 2600 series' new data compression feature is an AIM that allows customers to deploy network services such as voice without increasing WAN bandwidth, Cisco says.

For firewalling, the routers now support the Cisco IOS Firewall feature set software, which includes IP Security tunneling, Context-based Access Control, Java blocking, protection from denial-of-service attacks, real-time alerts and audit-trail logging.

The 2620 and 2621 routers cost $2,295 and $3,095, respectively, and are shipping now.

The data compression AIM costs $995, and the Cisco IOS Firewall feature set is $1,200; both are available now.

✆ Cisco: (408) 526-4000

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* *Data Communications Magazine*, August, 1998.

Briefs

■ *A leading competitive local exchange carrier (CLEC) has reinstalled its founder as CEO following mounting financial losses.* **E-spire Communications founder Anthony Pompliano has replaced Jack Reich,** *who late last month resigned as president, CEO and director of the Annapolis Junction, Md., company. Despite almost tripling revenue in its nearly 50 markets,* **E-spire posted a third-quarter loss of $12.4 million.** *The company blames customers' shift to expensive on-net fiber, as well as Year 2000 upgrades and other back-office expenses. CLECs have weathered several tough months as a result of volatility in the stock and high-risk bond markets.*

■ *The* **Federal Communications Commission** *is threatening* **Sprint** *and its Mexican partner,* **Telefonos de Mexico (Telmex),** *with penalties for violating the regulatory terms of their joint venture. The FCC alleges Telmex is not reducing its rates to complete calls from the U.S. fast enough, and that it is continuing to charge competitors high surcharges on international traffic. Sprint and Telmex have 30 days to show why Telmex's actions do not violate conditions imposed by the FCC when it approved the joint venture earlier this year.*

■ *Nearly a year after carriers began imposing* **universal-service surcharges,** *the federal government's school-subsidy program for network services has finally* **begun doling out money.** *The government-chartered Schools and Libraries Corp. issued about 3,000 commitment letters to school districts pledging funds totalling $73 million in E-rate discounts for Internet access, telecom services and internal connections.*

AT&T, MCI WorldCom heat up local frame relay

By David Rohde
Bedminster, N.J.

AT&T and MCI WorldCom are gearing up to go after frame relay business users who have many sites in a single local calling area. Their primary weapon: lower prices.

The two long-distance giants have disclosed that they are ready to install multiple frame relay sites in a single local access and transport area (LATA). In those locations the carriers will use new bundled prices for the port on the frame relay switch and the access line to each customer site.

The new prices are significantly less than what AT&T and MCI WorldCom ordinarily charge on the frame relay port for regional and national connections (see graphic).

Until now, such so-called intra-LATA frame relay has been dominated by regional Bell operating companies, all of whose traffic must remain within a LATA. RBOCs have tended to offer relatively inexpensive frame relay to retailers, government agencies and others with many nodes to connect in a single local area.

AT&T's new service — announced late last month and called simply AT&T local frame relay — became possible after its mid-summer acquisition of competitive local exchange carrier Teleport Communications Group. The deal gave AT&T a wealth of new access lines to reach customer sites, says Tom Noone, AT&T's data-services marketing director. Even so, the service will be available at the same price if the RBOC is the only local access choice, Noone says.

AT&T's service begins in Chicago, Indianapolis, Detroit and Milwaukee this month.

MCI WorldCom's service, called Metro Frame Relay, has not received a formal send-off, but it's ahead of AT&T's offering, company officials claim. "We already have 140 cities of Metro Frame Relay capability," says John Scarborough, MCI WorldCom's director of data-services product marketing.

MCI released to *Network World* a two-tier pricing schedule under which MCI's prices undercut AT&T's if the access line travels over traditional RBOC circuits. Prices fall even lower if one of MCI's On-Net local rings can reach the customer premise (see graphic).

In addition, both carriers are offering to put a user's local and national traffic on the same switch platform so the traffic can operate over a single frame relay net with identical features. Despite the improved pricing and features, MCI WorldCom and AT&T have their work cut out for them to wrest frame relay business away from RBOCs, users say.

For example, the Massachusetts state government briefly considered AT&T several years ago, but because of AT&T's high prices and the state's huge number of nearby sites to connect, it chose Bell Atlantic instead, says Richard Glasberg, the state's director of data communications.

AT&T's new local prices are "not bad, much more attractive," Glasberg says. "But the truth of the matter is that Bell Atlantic has all the local loops, so you have to be concerned about how many players you're working with. I don't want to be the referee in that match."

Likewise, the state of Delaware principally uses Bell Atlantic frame services though it maintains a Switched Multimegabit Data Service link with MCI WorldCom to Washington, D.C. The new pricing is "interesting, but it's still probably out of the ballpark," says Peter LaVenia, director of Delaware's office of telecommunications technologies.

Users who pick the long-distance carriers must also steer clear of at least one pitfall, warns Tom Jenkins, an analyst at TeleChoice, a consultancy in Boston. For example, AT&T's new T-1 local frame relay price of $1,100 applies only if every branch permanent virtual circuit (PVC) terminating at the data center's port is within the LATA, Jenkins notes. As soon as a single long-distance PVC is introduced, the T-1 price jumps to the much higher $2,690 price of the regular AT&T frame relay pricing schedule. ■

YOU DESERVE A BREAK TODAY

The new approach to local frame relay service that AT&T and MCI WorldCom are taking includes much lower prices than the companies' long-distance frame relay services.

Port speed	AT&T long-distance frame relay price	MCI WorldCom long-distance frame relay price	AT&T local frame relay price for all access lines	MCI WorldCom local frame relay price on resold access lines	MCI WorldCom local frame relay price on its own access lines
56K bit/sec frame relay	$295 for port only	$268 for port only	$255 for port and access line	$216 for port and access line	$116 for port and access line
T-1 frame relay	$2,690 for port only	$2,327 for port only	$1,100 for port and access line	$696 for port and access line	$546 for port and access line

Note: Permanent virtual circuits are additional. Term and volume discounts not included. AT&T's local prices represent expected range in advance of tariff approval.

SOURCES: AT&T, BASKING RIDGE, N.J.; MCI WORLDCOM, WASHINGTON, D.C.

Pledging Allegiance to telco competition

Royce Holland, MFS's former chief, is in the telecom game again.

Q&A

As one of MFS Communications' founders, Royce Holland was a driving force behind the Telecommunications Act of 1996 and other regulatory changes that helped competitive local exchange carriers (CLEC) barge into regional Bell operating company territory. MFS has since merged with WorldCom, but Holland has resurfaced as CEO of a new Dallas CLEC called Allegiance Telecom. He spoke recently with Network World News Director Bob Brown about getting back in the telecommunications game.

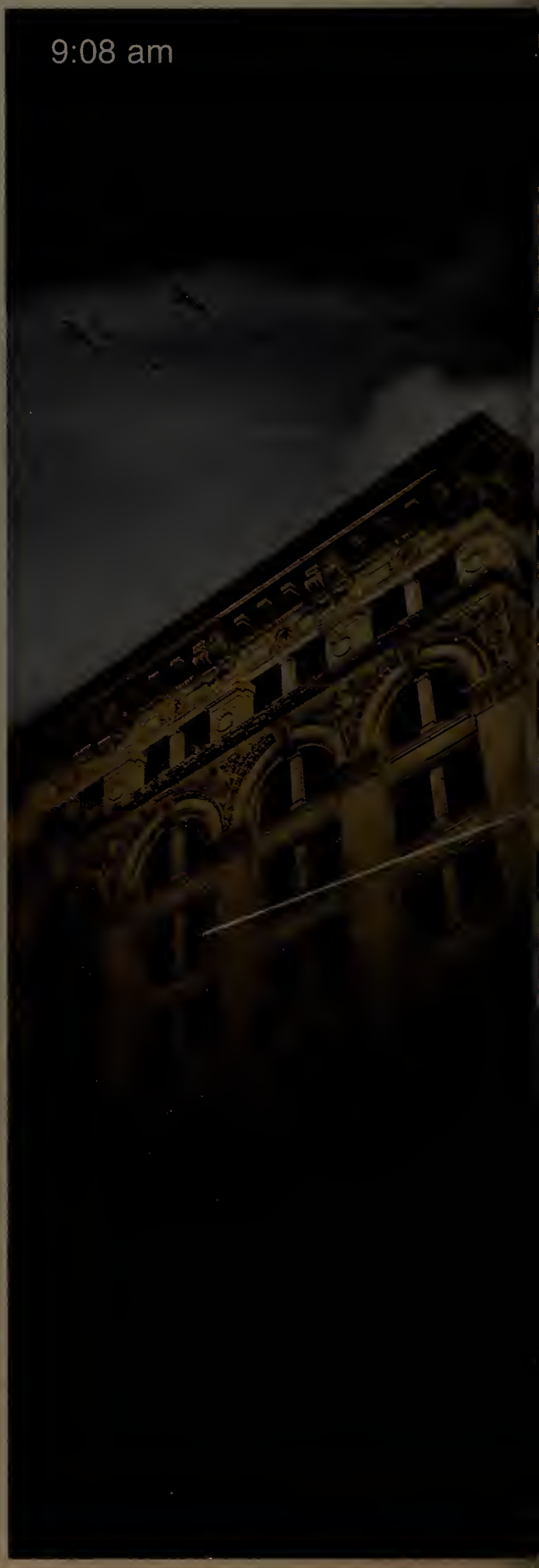
What's the latest on Allegiance?

We were fortunate to raise about $570 million over a 10-month period through venture funding, high-yield bonds and our initial public offering. We have enough cash now to build networks in 18 of our 24 target local markets, plus our ATM network. We'll be adding one market per month all through next year and the first quarter of the year 2000, which will get us to 24 markets.

What services are being offered by your company at this point?

Up until now we've been offering local and long-distance

See **Holland,** *page 38*



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New room-service fare: High-speed Internet access

By Ellen Messmer

Call it the hotel industry's big new idea in room service: high-speed access to the Internet for the laptop computer you lug along on your travels.

It took a multimillion dollar refurbishment of guest rooms to artfully conceal Ethernet cabling, but the Hyatt in San Jose, Calif., and the Four Seasons in Beverly Hills, Calif., can be counted among the first dozen or so hotels to open their doors to the Internet on behalf of their guests. The hotels also added T-1 Internet access lines and Web servers tied to the hotels' rooms.

"We now have 285 rooms and 11 meeting rooms wired up," says Kurt Englund, rooms division manager at the Four Seasons in Beverly Hills. The hotel, which started offering the service last month, is charging $9.95 for unlimited full-day LAN access to the 'Net. The San Jose Hyatt already offers Internet access service and charges $11.95 per day.

"We're undergoing a $17 million renovation of the property, and part of it is to wire up the buildings for the Web server and the Internet," says Jeff Burg, executive account manager at the San Jose Hyatt. "In the heart of Silicon Valley, our guests expect traditional amenities — and they also are used to high-speed connectivity in their offices. We're giving them that at T-1 speeds."

The separate Ethernet connection lets guests connect to their intranets while leaving their phones open for voice calls.

Hyatt has ordered specially constructed desks — dubbed the "smart desk" — that discretely hide an Ethernet port and cabling. The Hyatt now has 261 rooms set up for high-speed Internet access.

"The plan is to put [access] in every bedroom, at the spa and at poolside — wherever anyone goes," Burg says. The cost to refurbish one room with high-speed access wares runs between $500 and $1,000.

The Beverly Hills Four Seasons and the San Jose Hyatt have based their Internet services on gear from Atcom/Info, a San Diego, Calif., vendor that sells a package called the iPort Internet Access System. "iPort is an NT-based combination of Web server, router, Microsoft SQL server and billing engine," says Tom Caldwell, Atcom/Info's vice president of business development.

The biggest technical problem in trying to establish plug-and-play Ethernet connections for guests appears to center around a user's IP address. If an individual's laptop is configured to use the Dynamic Host Configuration Protocol, the iPort Internet Access System can simply assign an IP address to the laptop. The user sees a screen asking him to acknowledge the daily service charge.

However, if a user has a fixed IP address, he must open his browser and try to access his home page. According to Caldwell, the iPort NT server then "spoofs" the user's corporate network. "We alias the domain name server," Caldwell says. "We translate the packets on the fly from your Web proxy to ours."

Caldwell says an early attempt to get guests to install special IP configuration software on their computers failed because, not surprisingly, people were unwilling to go through the hassle.

Recently, Atcom/Info also reached the conclusion that not all hotels are willing to install and maintain Internet and LAN gear. Therefore, the firm will soon offer a service that will let multiple hotels use an Internet server located remotely in an Atcom/Info facility.

The Four Seasons Hotel *in Los Angeles is wired for the Internet.*

Atcom/Info's main competitor, Wayport of Austin, Texas, offers a similar service. Wayport says it has connected almost 1,200 rooms in eight hotels in the Austin area, and plans to expand nationally with the help of venture capital financing from Sevin Rosen Funds and Trellis Partners.

While it was hard to pin down Wayport on specific monthly service charges, Dirk Heinen, company vice president of marketing, says initial installation charges are typically $10,000 for a meeting room.

At the Four Seasons Hotel in Austin, where guest rooms have been wired with the Wayport service since August (daily charge for use: $8.95), the director of sales and marketing, Don Kerchof, acknowledges the biggest hurdle is the problem of IP addressing.

If the guest has a fixed IP address, the Wayport service requires him to reconfigure his laptop software for an assigned dynamic IP address. "Guests will do this, and Wayport has a customer-support service line to help, which has been great," Kerchof says. ■

Holland

Continued from page 35

services. We're in the process now of turning up our ATM network, and we're installing a ton of Cisco routers and Ascend frame relay switches. We'll be rolling out in this quarter a package of frame relay services, Internet access, Web server hosting and Web page design. We've got a high-speed backbone that we're leasing from Sprint that connects all of our local markets. We've got Internet access points from two major Internet backbone providers, UUNET and PSINet.

Allegiance *will soon offer Web hosting and page design services, Holland says.*

The key for us is to use our local service as a platform. If you want to buy Web server hosting, long distance or anything else from Allegiance, we wouldn't just sell that to you. You've got to take the local service from us. If we don't have the local service, the profit margins for a lot of the other things start to get fairly thin.

Who are your target customers?

Generally, mid-size and small businesses. We're not providing DS-1s and DS-3s like we did at MFS. We're providing services over the pipes and going after a very large number of customers, but they only average about 10 lines apiece. That type of company makes up about two-thirds of the business market.

What's the biggest difference in operating a CLEC now vs. before the telecom act?

At MFS we had to go out and spend up to two years before we could start service in a market. You had to go get city franchises, rights of way, you had to go cut up the streets to put in fiber before you could ever sell anything. Now we go in and put in a switch, and we collocate in a huge number of central offices. In most markets, we'll be able to serve 75% of the businesses over about a two-year period.

What were the biggest lessons learned at MFS?

The importance of back-office systems, which were our weak link, and I still consider them the weak link among most CLECs. The lack of good back-office systems among CLECs is the reason the Bell companies still have 98% market share two-and-a-half years after passage of the telecom act. Good back-office systems are needed to provide a consolidated package, including consolidated billing, for voice and data services.

Not many CLECs can manage, provision, install and collect huge numbers of orders and deal with huge monthly volume. We're focusing on the unbundled loop-type customers, and that's where you really have to have the back-office support. That's what we've really focused on putting together over the past year.

What's your view of the Bells now vs. when you were competing against them with MFS?

When I was at MFS in the pre-telecom act era, the Bell companies were subject to line of business restrictions. Other than Judge [Harold] Greene changing his mind, there was no way they were ever going to be able to get into new markets, such as long distance, where they could leverage their home service territories. So the Bell companies naturally fought us tooth and nail on everything we wanted to do in an effort to protect their monopolies. Some were a little easier to deal with than others, but they were all bad.

What we're seeing now is Bell Atlantic, which then was one of the toughest to deal with, has taken the attitude that it is going to be the first to get into long distance. We're working closely with Bell Atlantic now on electronic bonding among operational support systems. If Bell Atlantic does everything it is promising the New York Public Service Commission it will do, then I expect Bell Atlantic will get approved by the first quarter next year to get into long distance. Once one of the Bells gets in there's going to be a rush for the long-distance market among the RBOCs.

Until now your companies have only had to deal with one Bell per market. Will things actually get tougher if you get more than one of them in each of your markets?

We wouldn't have to worry about the non-incumbent Bell other than as another competitor in the market. Right now, every bit of business we're getting we're taking from the incumbent; we're not taking from other CLECs. The main reason for this is that the Bells still have 98% market share. ■

WAN MONITOR

The little start-ups that will

Have you ever noticed that in our industry the tail wags the dog? Innovative start-up companies guide most new technology development. Their ideas trickle into the industry and cause traditional vendors to make changes (or acquisitions).

It's amazing that a start-up can take an idea and create a product in a year. It is unfortunate that it takes at least twice as long for service providers to adopt those new technologies.

New classes of equipment will help service providers solve two problems. The first is getting new services out to users in a more timely fashion; the second is creating services that provide advanced features and functions.

Among the forthcoming products are incredible edge routers that will forward packets at optical speeds, as well as integrate tunneling, authentication, filtering, packet accounting, traffic shaping, address translation and more. With these routers, service providers will be able to deploy a single integrated platform instead of four or five black boxes. This integrated device will reduce costs and help service providers launch services more quickly because the providers won't be faced with months of interoperability and integration testing.

With new routers, service providers could create different types or classes of services simply by enabling or disabling specific features. One service might include encryption, tunneling and packet accounting. Another could add on filtering, compression, policing and traffic shaping.

Overlaying the services can be policies that guide service quality, service accessibility and even price based on network address, company and time of day.

Integrated devices also mean you can take most of the little boxes you've got stacked up in remote wiring closets and trade them in for a service that does the same and more.

Some companies that will be offering these integrated devices are not yet household names. They include Redstone, Northchurch and Shasta. Some of the devices are being built with Application Specific Integrated Circuit-like technology that puts a great deal of the intelligence in software, not hardware, without sacrificing performance. This means, in theory, that new features and capabilities can be quickly and easily added to the box. This, in turn, should mean that service providers can stay — well, not one step ahead of the curve — but not too many steps behind.

Daniel Briere
Christine Heckart

Another new class of start-up is focusing on address and service translation gateways between voice and data networks. The gateways will provide protocol interworking between IP or ATM addresses and feature translation. That means you will be able to keep all the advanced voice calling services to which you've grown accustomed, such as time-of-day routing, conference calling, messaging and feature dialing, even if that voice call is routed over a data network. Companies working on these gateways include Castle Networks and Consolidated Networks.

The next step in the evolution of these products is to port all the enhanced features to the data network so packets can be manipulated the same way phone calls are. There's a whole IP telephony industry working to make that happen.

Customer premises equipment is another new class of equipment that will help providers bring more advanced services to market in a more timely fashion.

This equipment bundles voice, data, Internet and video into a single protocol and/or onto a single access line.

The provider will manage the equipment as part of a service, so that adding a new application, feature or service to your portfolio can often be done in minutes through a remote software change. Carrier Access Corp. and Accelerated Networks are working on these products and services.

Within two years, these service-enabling platforms will be in place, so service providers can deliver more advanced services more quickly than ever.

Briere is president and Heckart is vice president of TeleChoice, a consultancy in Boston. They can be reached at dbriere@telechoice.com and checkart @telechoice.com.

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B1298

1. What is the principal business activity at your location?
(check ONE only)

01. ☐ Manufacturing (other)
02. ☐ Finance/Banking
03. ☐ Insurance/Real Estate/Legal
04. ☐ Health Care Services
05. ☐ Hospitality/Entertainment/ Recreation
06. ☐ Media/TV/Cable /Radio/Print
07. ☐ Retail/Wholesale Trade/ Business Services
08. ☐ Transportation
09. ☐ Utilities
10. ☐ Education
11. ☐ Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
12. ☐ Government (Federal/State/Local)
13. ☐ Military
14. ☐ Aerospace
15. ☐ Consulting (Independent)*
16. ☐ Carriers/Interconnects
17. ☐ Internet Service Provider (ISP)
18. ☐ Manufacturing (Computer/ Communications/OEM)
19. ☐ Resellers of Computer/Network Products (VARs, VADs)
20. ☐ Systems/Network Integrators*
21. ☐ Distributors (Computer/ Communications)*
22. ☐ Other (please specify) _____

** Please complete form based on largest client.*

2. What is your job function?
(check ONE only)

NETWORK IS MANAGEMENT:
1. ☐ Network Management
2. ☐ LAN Management
3. ☐ Datacom/Telecom Management
4. ☐ IS/IT/MIS/CIO/Systems Management
5. ☐ Internet/Intranet/Electronic Commerce Mgmt., Webmaster
6. ☐ Engineering Management
7. ☐ Corporate Management (CEO, Pres., VP, Dir., Mgr., Financial Management)
8. ☐ Consultant (Independent)
9. ☐ Other _____

3. What is the estimated value of Network equipment and services that you specify, recommend or approve the purchase of?
(Please print the appropriate number code on the line next to each product category. Please complete ALL categories A–N.)

1. $100 Million or more
2. $50 Million to $99.9 Million
3. $25 Million to $49.9 Million
4. $10 to $24.9 Million
5. $1 to $9.9 Million
6. $100,000 to $999,999
7. $50,000 to $99,999
8. Under $50,000
9. None of the above

A _____ Large Systems (Mainframes/Minis)
B _____ Desktops (Micros/Laptops/Workstations)
C _____ Servers
D _____ LANs
E _____ WAN Equipment
F _____ Carrier Services
G _____ Internetworking
H _____ Internet
I _____ Intranet
J _____ Extranet
K _____ Remote Access
L _____ Peripherals
M _____ Software
N _____ Service/Support

4. What is the total number of sites for which you have purchase influence?
(check ONE only)

1. ☐ 100+ 2. ☐ 50 – 99 3. ☐ 20 – 49 4. ☐ 10 – 19 5. ☐ 2 – 9 6. ☐ 1 7. ☐ None

5. What is the total number of Servers/Clients/LANs installed/planned at your location/ in your entire organization?
(check ONE box in each column)

	SERVERS		CLIENTS		LANS	
	At Location (A)	Entire Org. (B)	At Location (C)	Entire Org. (D)	At Location (E)	Entire Org. (F)
1.	50,000+		50,000+		50,000+	
2.	10,000 to 49,999		10,000 to 49,999		10,000 to 49,999	
3.	1,000 to 9,999		1,000 to 9,999		1,000 to 9,999	
4.	100 to 999		100 to 999		100 to 999	
5.	50 to 99		50 to 99		50 to 99	
6.	10 to 49		10 to 49		10 to 49	
7.	1 to 9		1 to 9		1 to 9	
8.	none		none		none	

6. What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check one only)
1. ☐ Corporate/Enterprise
2. ☐ Department
3. ☐ None

B. Involvement (check ALL that apply)
1. ☐ Create Network Strategy
2. ☐ Recommend/Specify
3. ☐ Approve
4. ☐ Evaluate
5. ☐ Determine the Need
6. ☐ None

7. What is the estimated number of employees at your location/in entire organization?
(check ONE in each section)

A. At your location:
1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 250 – 499
8. ☐ 249 or less

B. Entire organization:
1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 499 or less

8. Please indicate the products/services that you are currently involved in purchasing or plan to purchase:
(check ALL that apply)

A. Currently involved in purchasing B. Plan to purchase

INTERNET/INTRANET

A	B		A	B		A	B	
☐	☐	01. Internet Services/Web Hosting	☐	☐	07. Voice/Video Over IP	☐	☐	12. Web Browsers
☐	☐	02. Firewalls/Security/Encryption	☐	☐	08. VPN Equipment/Services	☐	☐	13. Intranet Applications/Groupware
☐	☐	03. Web Servers/Software	☐	☐	09. Legacy Integration Tools (Web to Host)	☐	☐	14. Search/Retrieval Products (web crawler)
☐	☐	04. Web Servers/Hardware	☐	☐	10. Web Development Tools (JAVA, ActiveX, etc.)	☐	☐	15. Electronic Commerce Tools
☐	☐	05. TCP/IP Software				☐	☐	16. Web Authoring Tools
☐	☐	06. Management/Monitoring Software	☐	☐	11. Push Technology	☐	☐	17. Other _____

LOCAL-AREA NETWORKS/ INTERNETWORKING

A	B		A	B		A	B	
☐	☐	18. Local-Area Networks	☐	☐	28. Layer 3 Switches	☐	☐	37. UPS
☐	☐	19. Network Dperating System Software	☐	☐	29. Network Storage Devices (NASs, SANs)	☐	☐	38. Network Interface Cards (NICs)
☐	☐	20. Servers	☐	☐	30. LAN Storage/Backup	☐	☐	39. Hubs
☐	☐	21. Print Servers	☐	☐	31. Dptical Storage/Backup/ Jukeboxes	☐	☐	40. Intelligent Hubs
☐	☐	22. Routers				☐	☐	41. Stackable Hubs
☐	☐	23. ATM Switches	☐	☐	32. Disk Storage/Backup	☐	☐	42. Bridge/Router
☐	☐	24. Token-Ring Switches	☐	☐	33. Tape Storage/Backup	☐	☐	43. SNMP Network Management
☐	☐	25. Ethernet Switches	☐	☐	34. RAID Storage/Backup	☐	☐	44. Gateways
☐	☐	26. Fast Ethernet	☐	☐	35. Network Test/Diagnostic Tools	☐	☐	45. Concentrators/Repeaters
☐	☐	27. Gigabit Ethernet	☐	☐	36. Cables, Connectors, Baluns	☐	☐	46. Other (please specify) _____

COMPUTERS/PERIPHERALS

A	B		A	B		A	B	
☐	☐	47. Thin Clients/Network Computers (NCs)	☐	☐	50. Minis	☐	☐	54. CD-ROM/DVD
☐	☐	48. Laptops/Notebooks/Sub-Notebooks	☐	☐	51. Mainframes	☐	☐	55. Fax/Modem Boards
☐	☐	49. Micros/PCs	☐	☐	52. Workstations	☐	☐	56. Memory/Chips/Boards/Cards
			☐	☐	53. Printers/Network Printers	☐	☐	57. Other _____

REMOTE/WIRELESS COMPUTING

A	B		A	B		A	B	
☐	☐	58. Remote Access Products	☐	☐	61. PCMCIA Oevices	☐	☐	63. Cellular Equipment & Services
☐	☐	59. Remote Access Services	☐	☐	62. Wireless Data Equipment/Services	☐	☐	64. Other (please specify) _____
☐	☐	60. PDAs						

SOFTWARE/APPLICATIONS

A	B		A	B		A	B	
☐	☐	65. Network Management	☐	☐	75. EDI	☐	☐	B4. Data Warehousing
☐	☐	66. Systems Management	☐	☐	76. E-mail	☐	☐	85. Anti Virus Software
☐	☐	67. Security	☐	☐	77. Oesktop Videoconferencing	☐	☐	B6. Multimedia
☐	☐	68. Communications Software	☐	☐	7B. Imaging	☐	☐	B7. Yr. 2000 Conversion Software (Y2K)
☐	☐	69. Terminal Emulation	☐	☐	79. Suites/Server Suites (Back Dffice, etc.)	☐	☐	8B. Helpdesk
☐	☐	70. Dperating Systems				☐	☐	89. Web Based Management Tools
☐	☐	71. Applications Development Tools	☐	☐	80. Middleware	☐	☐	90. Directory Services
☐	☐	72. Database Management/ RDBMS	☐	☐	81. Document Management	☐	☐	91. Other (please specify) _____
☐	☐	73. Groupware	☐	☐	82. Site Metering Tools			
☐	☐	74. Workflow	☐	☐	83. Computer Telephony Integration (CTI)			

WIOE-AREA NETWORK EQUIPMENT & SERVICES

A	B		A	B		A	B	
☐	☐	92. 56 Kbps Modems	☐	☐	99. xOSL Services/Products	☐	☐	108. Managed LAN/Router Services
☐	☐	93. Under 56 Kbps Modems	☐	☐	100. Diagnostic/Test Equipment	☐	☐	109. Other _____
☐	☐	94. Cable Modems	☐	☐	101. DSU/CSU			
☐	☐	95. Asynchronous Transfer Mode (ATM)	☐	☐	102. PBXs	☐	☐	110. Outsourcing/Systems Integration Services
☐	☐	96. Frame Relay Equipment/ Services	☐	☐	103. Videoconferencing	☐	☐	111. Education/Training Services
☐	☐	97. ISDN Equipment & Services	☐	☐	104. Leased Lines			
☐	☐	98. FT-1/T-1/T-3 Multiplexers/Services	☐	☐	105. Switched Oata	☐	☐	112. None of the above (1–111)
			☐	☐	106. Virtual Private Networks (VPN)			
			☐	☐	107. FRADs			

9. Please indicate the platforms that are currently installed/planned:
(check ALL that apply)

A. Currently installed B. Planned for purchase

NETWORK PROTOCOLS

A	B		A	B		A	B	
☐	☐	01. TCP/IP	☐	☐	04. Novell IPX/SPX	☐	☐	07. NFS
☐	☐	02. IPv6	☐	☐	05. APPC/APPN/LU 6.2	☐	☐	08. SNMP
☐	☐	03. SNA	☐	☐	06. NETBIOS	☐	☐	09. Other _____

LAN ENVIRONMENT

A	B		A	B		A	B	
☐	☐	10. Gigabit Ethernet	☐	☐	14. ATM	☐	☐	18. FDDI
☐	☐	11. Switched Ethernet	☐	☐	15. Token Ring/Token Ring Switching	☐	☐	19. 100Base-T
☐	☐	12. Fast Ethernet (100 Megabit Ethernet)	☐	☐	16. IP Switching	☐	☐	20. 10Base-T
☐	☐	13. Ethernet	☐	☐	17. Layer 3 Switching	☐	☐	21. Fibre Channel
						☐	☐	22. Other _____

NETWORK OPERATING SYSTEM

A	B		A	B		A	B	
☐	☐	23. Windows NT	☐	☐	27. Novell (NetWare 4.X)	☐	☐	31. IBM (Server)
☐	☐	24. Windows NT/Advanced Server	☐	☐	28. Novell (NetWare 2.X, 3.X)	☐	☐	32. Other (please specify) _____
☐	☐	25. Novell IntranetWare	☐	☐	29. Microsoft (LAN Manager)			
☐	☐	26. Novell (NetWare 5.X)	☐	☐	30. Banyan (VINES)			

COMPUTER OPERATING SYSTEM

A	B		A	B		A	B	
☐	☐	33. NT Server	☐	☐	38. Windows 95	☐	☐	43. Digital VMS
☐	☐	34. NT Workstation	☐	☐	39. Windows 98, .9x	☐	☐	44. Macintosh
☐	☐	35. Unix/Xenix/AIX/SCO	☐	☐	40. DDS	☐	☐	45. Dther _____
☐	☐	36. Solaris	☐	☐	41. OS/2, OS/2 Warp	☐	☐	46. None of the above (1–45)
☐	☐	37. Windows	☐	☐	42. IBM MVS/VM/VSE			

10. Which of the following Servers/Clients do you have installed/planned at your location?
(check ALL that apply in each column)

	A. Servers	B. Clients		A. Servers	B. Clients
Power PC	☐ 01.	☐	4B6, 3B6, 286	☐ 07.	☐
Power Mac	☐ 02.	☐	Sun Sparc	☐ 08.	☐
Mac Other	☐ 03.	☐	Risc	☐ 09.	☐
Multiprocessor Servers	☐ 04.	☐	Alpha	☐ 10.	☐
Pentium II (PII)	☐ 05.	☐	Dther	☐ 11.	☐
Pentium/Pentium Pro	☐ 06.	☐			

11. Which of the following hardware platforms are installed/planned in your company?
(check ALL that apply)

A - Mainframes (Large Scale)
1. ☐ IBM
2. ☐ Amdahl
3. ☐ Cray
4. ☐ Hitachi
5. ☐ Unisys
6. ☐ Dther _____

B - Minis (Midrange)
1. ☐ IBM RS/6000
2. ☐ IBM AS/400
3. ☐ Digital
4. ☐ Tandem
5. ☐ Unisys
6. ☐ AT&T GIS
7. ☐ H-P
8. ☐ Data General
9. ☐ Other _____

C - Workstations
1. ☐ Sun Microsystems
2. ☐ Silicon Graphics
3. ☐ Digital
4. ☐ H-P
5. ☐ IBM
6. ☐ Other _____

12. What is the estimated gross revenue of your entire company/institution?
(check ONE only)

01. ☐ $20 billion or more
02. ☐ $10 billion to $19.9 billion
03. ☐ $1 billion to $9.9 billion
04. ☐ $500 million to $999.9 million
05. ☐ $100 million to $499.9 million
06. ☐ $50 million to $99.9 million
07. ☐ $10 million to $49.9 million
08. ☐ $5 million to $9.9 million
09. ☐ $4.9 million or less
10. ☐ None of the above

13. For which areas outside of North America do you have purchase influence?
(check ALL that apply)

1. ☐ Europe 2. ☐ Asia 3. ☐ South America 4. ☐ Australia 5. ☐ Middle East 6. ☐ None

FORM: 9801

Please indicate the names and job functions of other individuals at your location to whom you would like us to send a copy of **NetworkWorld**

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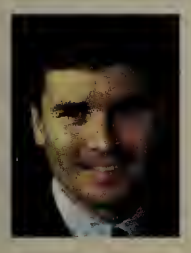
Briefs

■ **Net-It Software Corp.,** *a San Francisco maker of document publishing software, last week said it is changing its name to* **Allegris Corp.** *as part of a plan to expand the company's focus. Allegris CEO Dennis Ryan says the company will continue to develop and sell its Net-It intranet and extranet document sharing products, but it will branch out into a new category that the company is calling* **partner relationship management.** *Allegris plans to sell software that will make it easier for companies to establish and manage relationships via networks. Allegris plans to introduce its first partner relationship management software in the first quarter of next year.*



CEO Ryan *is changing Net-It to Allegris.*

Allegris also announced that it has received $5 million in venture funding. The money comes from new Allegris investor Integral Capital Partners and previous investors Benchmark Capital Partners and Brinson Partners.

■ **Entrust Technologies** *last week started shipping Entrust/Commerce CA 4.1, a* **digital certificate server** *intended for use by financial institutions that want to issue certificates based on the Secure Electronic Commerce (SET) standard for use by credit-card holders, merchant servers and payment gateways. Entrust claims the server is interoperable with VeriFone SET gear, but the company adds that Entrust/Commerce CA 4.1 is still awaiting official certification of SET 1.0 compliance by SETCo.*

SETCo is the independent authority performing compliance tests on a range of SET equipment.

© Entrust: (888) 690-2424

Why buy when you can rent apps?

Oracle, Electronic Data Systems and start-up USinternetworking jump into new business.

By John Cox

Application rental services are becoming all the rage among vendors, which say their offerings will enable businesses to deploy new network applications faster and cheaper.

On the surface, the benefits seem compelling. Instead of investing money to build and maintain an applications system consisting of servers, operating systems, applications software, training and support, a customer can pay a fixed monthly fee to a third-party provider that has such a system in place.

The lure is strong for small to mid-size companies, says Clare Gillan, vice president of applications research at International Data Corp. (IDC), a market research company in Framingham, Mass.

"These companies just don't have the resources or the expertise to create their own IT core competency in addition to their main business competencies," she says.

A third-party company managing the remote servers might be an applications vendor or a start-up service company created specifically to rent and manage applications. Several vendors might also join forces to offer such services. All these vendors are looking to create economies of scale by building data centers, installing various applications, and then spreading the cost across their business customers.

Applications rental businesses are updated versions of the old mainframe-based service bureaus. But today, applications run on Windows NT or Unix servers, and the clients are Windows PCs, network computers running Java Web browsers or Windows-based terminals. The link between a desktop and a remote data center can be the Internet or a private IP network.

The result is "the system is being put together as a service channel, with more standardized technologies, which in turn reduce the costs for buyers and improve application implementation times," IDC's Gillan says.

Indeed, one start-up, USinternetworking (USi), formed earlier this year to provide applications services, claims it can now get a customer up and running on SAP's complex R/3 enterprise resource planning software in just 45 days. Rolling out this software typically takes many months for customers who go it alone.

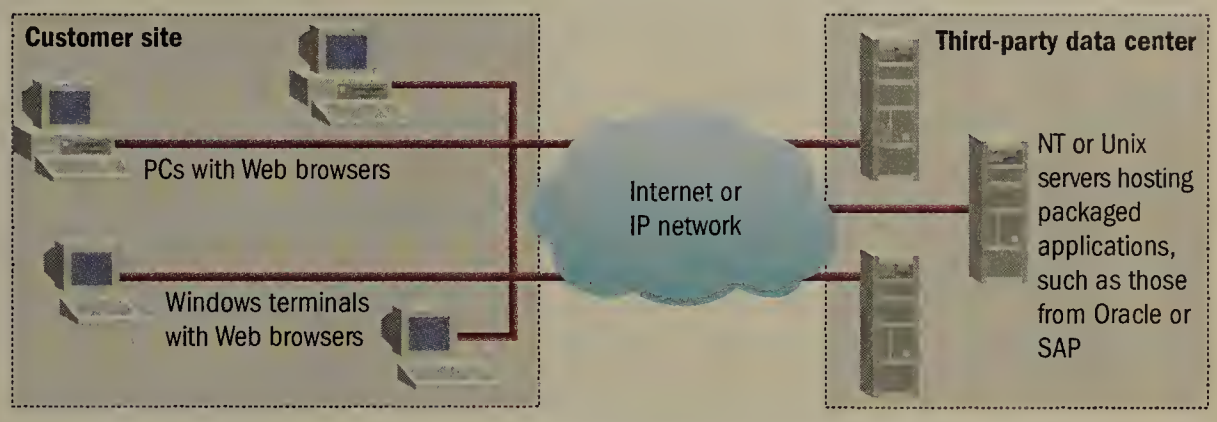
Last month, several big-name vendors — Oracle, Electronic Data Systems (EDS) and Sequent Computer Systems — unveiled details of new applications services aimed directly or indirectly at corporate users.

Oracle formally announced Oracle Business Online, which involves running the company's suite of business applications in a new data center and providing end users with access to it for a monthly fee.

See **Rent,** *page 48*

RENTING SOFTWARE

New services let companies, in effect, rent applications from third-party providers.



Questions to ask applications service providers:

- What does the monthly fee include?
- Are there additional charges for implementation and setup?
- How customizable is the software, and who performs the customization work?
- How is security handled?
- Is there enough trained staff to implement your system?
- What kind of service-level agreements are available?
- How is reliability ensured?

Oracle's new business

Q&A

Oracle Business Online is a new service that gives customers access to Oracle's business applications suite via the World Wide Web for a monthly fee. Six-year Oracle veteran Don Haig, vice president in charge of the new service, recently spoke with *Network World* Senior Editor John Cox about the new offering.

Where did Oracle get the idea for this new service?

Companies in the $50 million to $500 million revenue range were saying to us, "I really like your software, but for various reasons, I have trouble running it internally. Why don't you run it for me?"

At the same time, we rolled out Version 10.7 [now Version 11] of the Oracle Applications suite, which was the first Web-enabled version. We could then deploy a hosted version of our applications much more easily.

What reasons were customers giving for their inability to deploy and manage this software themselves?

Foremost was the lack of availability of IT personnel. Other barriers are the high upfront capital costs and not having the needed skills in their existing staff to deploy or maintain the applications.

Haig says *companies low on IT staff can benefit from Oracle's new service.*

Why should customers trust Oracle to deliver applications from its big new data center?

It's true we have not offered data center operations as part of our consulting services.

See **Oracle,** *page 48*

Sun shines in AOL/Netscape deal

Company to introduce its Java and Jini technologies to AOL's 14 million subscribers.

By Chris Nerney

Most stories about the recent three-way deal involving America Online, Netscape and Sun have focused on AOL's $4.2 billion purchase of the beleaguered browser maker.

But the real beneficiary may be Sun, which has shrewdly positioned itself to capitalize on two potentially huge markets — electronic commerce and embedded software — while tapping into a major customer base for its Java technology.

By paying AOL $350 million, Sun gets to distribute Netscape's entire line of enterprise products, including its Web servers, e-commerce applications and client software. In short, Sun now has distribution rights to the middleware needed to enable business-to-business and business-to-consumer transactions.

"If you want to play in the open commerce market, you've got to have middleware," says John Loiacono, Sun's vice president of brand marketing. "We wanted to get into the middleware game."

The deal is a good fit because Solaris is the development platform for Netscape's CommerceXchange line of transactional application software.

Sun CEO Scott McNealy *envisions an e-commerce marketplace utilizing a continuous network "dial tone."*

For its part, AOL expects Sun's back-end expertise to help the company draw business customers that might otherwise be leery of betting their online endeavors on the consumer-oriented ISP. AOL has agreed to buy $500 million worth of Sun hardware and services for its own use and for its e-commerce partners.

Device designs

Just as Sun and AOL share a belief in the future of e-commerce, the two companies see the market opportunity for Internet technology reaching well beyond the corporate desktop and home computer to embedded devices.

"The game has extended beyond the Internet to ubiquitous computing, wireless, mobile devices," says Patricia Seybold, president of Patricia Seybold Group in Boston. "It's no longer just about connecting workstations."

AOL wants to get into that game by selling "AOL devices," such as TV set-top boxes and handheld appliances. CEO Steve Case says the devices would be powered by PersonalJava, based on the Java programming language. AOL devices would be designed to run on any operating system, and would use Netscape's client software.

In return for providing the engine that propels such devices, Sun will be able to introduce Java and Jini — its technology designed to allow "spontaneous" network computing — to AOL's 14 million subscribers.

"This gives us an opportunity to develop broad appeal for Java and Jini," Loiacono says.

Jini will be showcased at this week's Java Business Expo in New York. ■

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Software restricts access to sensitive files

Digital Delivery's new version of Confidential Courier lets managers put time limits on file access.

By Ellen Messmer
Bedford, Mass.

Digital Delivery, Inc. has begun shipping an updated version of its client/server security application, a program that lets managers restrict access to sensitive information stored on desktop systems in order to thwart unauthorized duplication of material.

Confidential Courier 2.1 lets managers specify a time window in which files can be viewed by a user, permanently shutting off individual access after the deadline has expired. One company, Siemens Building Technologies, is using Digital Delivery's software to distribute files of sensitive technical information to field technicians.

"We were doing everything by paper before," says Michael Synovic, senior technical communicator at the Buffalo Grove, Ill., company, which has used Confidential Courier for almost a year. "But we wanted to distribute information electronically while preventing massive copying."

"Companies are looking at this as a way to make sure everyone is reading up-to-date material."

Mark Hastings, *president and CEO, Digital Delivery*

Confidential Courier requires the administrator to add Digital Delivery's Windows client software to each user's computer. This software tells the user which files he can unlock and for how long. The Windows NT-based server component of Confidential Courier prepares encrypted files for distribution via CD-ROM, LANs, the Internet and other routes.

"In Version 2.1, we use what we call CourierPAK AppWare to sign the digital file with the hash of the authorized application," says Mark Hastings, Digital Delivery's president and CEO. "This makes it so you can only open the file with an authorized application."

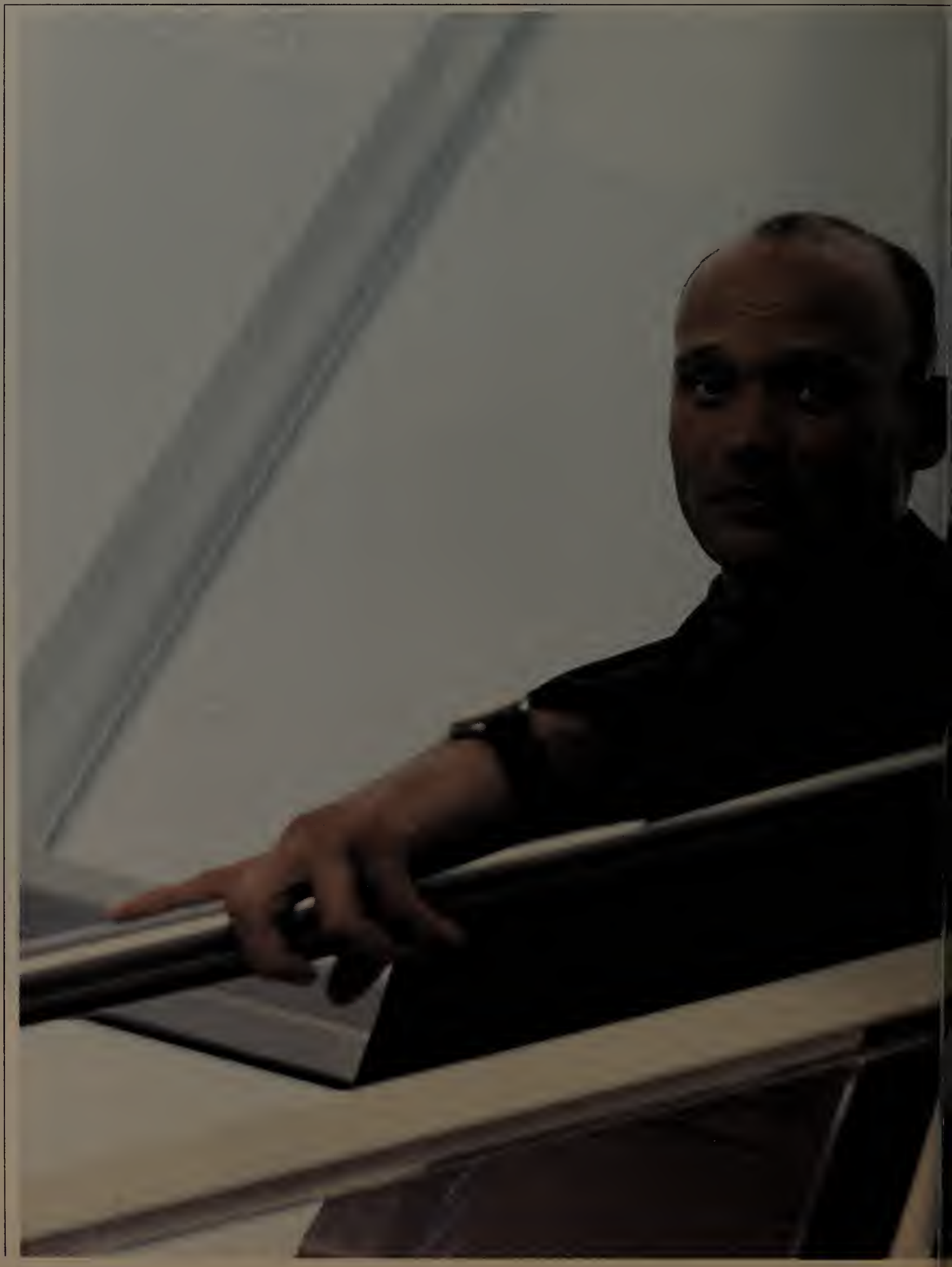
Frequently, Digital Delivery customers decide on a "read-only" policy so users can't copy or otherwise distribute a file once it is sent to them, Hastings says.

Confidential Courier works using private-key encryption technology. The user is given access codes — simple text strings — that after a challenge-response procedure prompt the Confidential Courier server to distribute a key to the user for unlocking an encrypted file.

The latest version of the product lets an administrator dictate specific time periods during which a user can decrypt a file and read it. At the end of the predetermined time period, the user will be locked out of the file, though the file will not be deleted. "Companies are looking at this as a way to make sure everyone is reading up-to-date material," Hastings notes.

Confidential Courier starts at $2,995.

© Digital Delivery: (781) 275-3830



'NET INSIDER

We are here to help you

Jim Isaak wrote an article for the December issue of *Computer,* the IEEE computer society magazine, titled "The role of government in IT standards." I'm somewhat puzzled by much of the article and quite worried about some of its recommendations.

As a member of the Internet Engineering Task Force (IETF), I think much of the article makes a great deal of sense. Isaak's strongest statement is that "governments cannot effectively represent their constituents by taking unilateral action in establishing standards." It would be hard to argue the reverse.

Governments have not proven themselves to be knowledgeable enough or able to respond quickly enough to play controlling roles in standards development. In general, government involvement tends to inhibit rather than foster innovation.

As Judge Stewart Dalzell put it to me during court hearings for the American Library Association's challenge to the Communications Decency Act: "And indeed, isn't the whole point that the very exponential growth and utility of the Internet occurred precisely because governments kept their hands out of this and didn't set standards that everybody had to follow?"

Jim Isaak writes, and I agree, that the government should act as an "informed consumer" and vote with its purchasing dollars to "manage procurement and internal policies needed to reinforce critical standards."

But Jim is missing some of the lessons of history when he suggests that governments should do conformance testing. This was tried with limited success when many governments around the world were backing the Open Systems Interconnection protocol suite in opposition to TCP/IP. The marketplace and, in some cases, contractual law (a recent example is the Sun vs. Microsoft court battle over Java) seem to address interoperability and conformance testing quite well. Note that proper implementation is more important for the set of a standard's features that consumers want to use than for all of the standard's features. Conformance testing tends to forget this and wants to ensure all features work.

Scott Bradner

But I think Isaac is seriously mistaken is in his suggestion that "Governments should serve as neutral catalysts to encourage prioritization within the standards process, which means participating in key forums at both a management level to establish priorities and at a technical level to keep things on track."

Disregarding the assertion that a "neutral catalyst" can "encourage prioritization," the idea that organizations, such as the IETF, should have government representatives at their "management level" is very troublesome indeed. The idea that governments would be formally put in positions of power in standards organizations just because they are governments seems guaranteed to minimize the chance of an effective, market-driven, standards-making process.

Luckily, the IETF cannot be forced to accept such "help."

Disclaimer: Harvard frequently offers help but does not foist it upon others. The above is my rejection of assistance.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@harvard.edu.

Web site monitor checks security

New Avesta software supports digital certificates, Secure Sockets Layer 3.0.

By Ellen Messmer
New York

Avesta Technologies this week will begin shipping an upgraded version of its Web site monitoring tool that caters to companies running World Wide Web servers for electronic commerce and other extranet applications.

The company's new software, IPnetWatcher 1.2, now can check on how well Web site security applications, such as those based on digital certificates or Secure Sockets Layer (SSL) 3.0, are working.

Such security applications are key for Nortel Networks Channelware and other organizations that are responsible for e-commerce sites.

Barry Gander, director of outreach at this Ottawa-based Nortel business, says he'll migrate to the new version of Avesta's software because of the SSL support. His organization uses IPnetWatcher to monitor Web sites for clients, such as game maker Electronic Arts, that make software available to customers via networks. Security is key because Channelware basically oversees transaction-processing applications for its customers, Gander says.

IPnetWatcher 1.2 features

- Monitors the effectiveness of Web site security applications, such as those based on digital certificates.
- Enables managers to establish parameters for when a problem, such as a dynamic Web query failure, should trigger an alert.
- Automates escalation of problem notification via e-mail, pager, desktop interface or other means.

Available for Windows NT or Solaris servers, IPnetWatcher 1.2 keeps an eye on HTML applications running on any Web server to ensure that server hardware, software and services are all readily available to Web visitors. When IPnetWatcher sees an application slowing down or generating error messages, it notifies the network manager through an alert sent by e-mail, pager or desktop notification.

In addition to gaining new security capabilities, IPnetWatcher has been retooled by Avesta to conduct health checks on back-end database connections used by Web servers, says Jennifer Harris, Avesta's manager of marketing. It performs the checks by running simulated transactions on a round-the-clock basis, she says.

IPnetWatcher also continues to search for problems with e-mail servers and IP services such as Web, Domain Name System, and File Transfer Protocol. The latest version of the software has been integrated into Avesta's enterprise network management software, dubbed Trinity. It also works with Computer Associates International's Unicenter TNG platform and can send trap messages to any SNMP-based management platform.

IPnetWatcher 1.2 starts at $5,000.

✆ Avesta: (212) 209-1521

Rent

Continued from page 41

Oracle installs a router at the customer site to provide access to the Oracle data center, which houses a slew of NT and Unix servers, says Don Haig, vice president of Oracle's new business.

"In our model, there is no software and no staff at the customer site," he says. "The customers only need a workstation, a browser and a connection to the network."

Oracle will charge $395 to $895 per user each month, depending on the number and mix of applications. Meanwhile, EDS and Sequent have partnered to create thin-client systems for companies looking to offer or use application rental services.

The offerings are based on Sequent's NUMA-Q 2000 servers running multiuser NT software: either Citrix's WinFrame or Microsoft's Windows NT 4.0 Terminal Server Edition. Users access applications running on the servers from Windows-based terminals or from PCs running Citrix's client software.

In some cases, EDS simply will build these systems at customers' sites and turn them over to the customers' MIS departments for management. But EDS also will run an applications system at one of its data centers, or build the system for an ISP, which can then use it to rent applications to business users, says Dave Endicott, EDS vice president for distributed systems and management services.

So far, few companies have embraced this new applications model. One that has partially done so is Legg Mason, a Baltimore brokerage house.

To let brokerage customers easily access account information and other applications via the World Wide Web, Legg Mason relies on USi, which supplies Internet connectivity and runs the Web servers. Today, the applications are still maintained by the brokerage on its own servers.

But that could change soon, according to Mike Abbaei, Legg Mason chief information officer.

"USi houses our Web servers," he says. "As we put more of our applications on the Web servers, USi will likely manage them." ■

Start-up pitches e-mail appliance

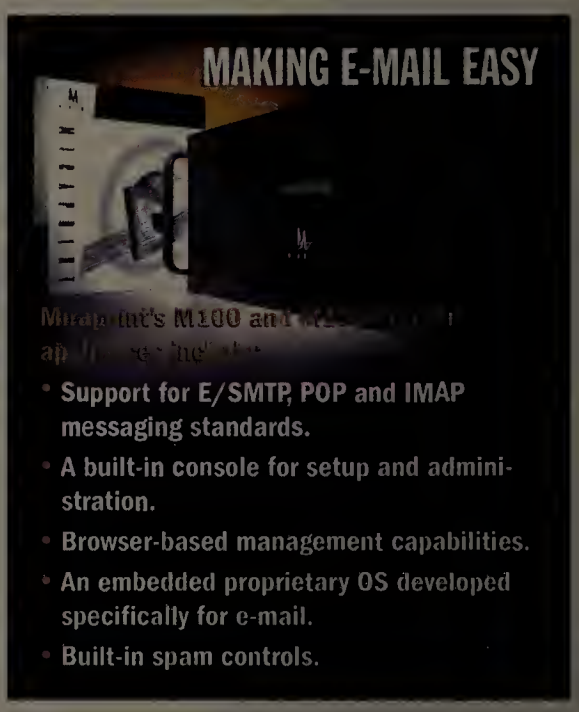
By Paul McNamara
Menlo Park, Calif.

Convinced that many messaging customers prefer simplicity to bells and whistles, a start-up called Mirapoint this week will make its corporate debut by offering a single-purpose Internet e-mail server appliance.

Mirapoint's M100 and M1000 thin servers come with standards-based e-mail software and can be up and running in only 10 minutes, the company says. Targeted at corporations with up to 5,000 workers and ISPs with less than 100,000 accounts, the devices can be used with any e-mail client that supports Internet Message Access Protocol 4 or Post Office Protocol 3. The software runs on an embedded proprietary operating system designed for e-mail purposes. Mirapoint claims this "function-specific" approach makes the devices more reliable, scalable and easier to manage than established messaging systems that run on Windows NT or Unix servers.

Mirapoint does not expect to wrest many customers from e-mail market leaders Lotus Notes and Microsoft Exchange. However, it does see its devices meeting a growing demand for standards-based e-mail servers, as well as the migration needs of legacy system users who want neither the complexity nor the expense of more feature-rich products such as Notes and Exchange.

One industry expert believes Mirapoint makes a compelling case for its new appliance, although he remains skeptical that corporate customers will embrace a concept that other vendors have targeted only at small office/home office users.



"This little black box is worth looking at to see exactly what control, functionality and performance you will have," says Mark Levitt, research manager at International Data Corp. in Framingham, Mass.

Mirapoint's products are expected to ship within the next few weeks. The M100 will cost $14,895 and include a 300-user license, while the M1000 is priced at $25,995 with an unlimited number of user licenses.

✆ Mirapoint: (650) 470-7400

Oracle

Continued from page 41

But we have the wherewithal to run large data centers. We have significant involvement from Sun and Hewlett-Packard in setting up the pilot data center. They're providing servers, technical architecture resources and service resources.

When will the new service be available?

We're starting the pilot program with about six customers who will go through the implementation process with us. We'll make it generally available in the U.S. during the first half of 1999. The plan is to start with horizontal applications, such as purchasing and order entry. Then we'll add our discrete manufacturing applications, along with applications from our independent software vendor partners, in the latter half of 1999.

How will you ensure security with different customers accessing the same data center?

There is a separate instance copy of each software application for each customer. The customers may share hardware at the data center, but that should be transparent to them.

Customers will have their own data circuits to access the application, and we'll provide encryption. Customers administer access through user IDs, passwords and access privileges.

We plan to have a third party, such as one of the major accounting firms, review our security controls, and we'll have off-site backup and disaster recovery. ■

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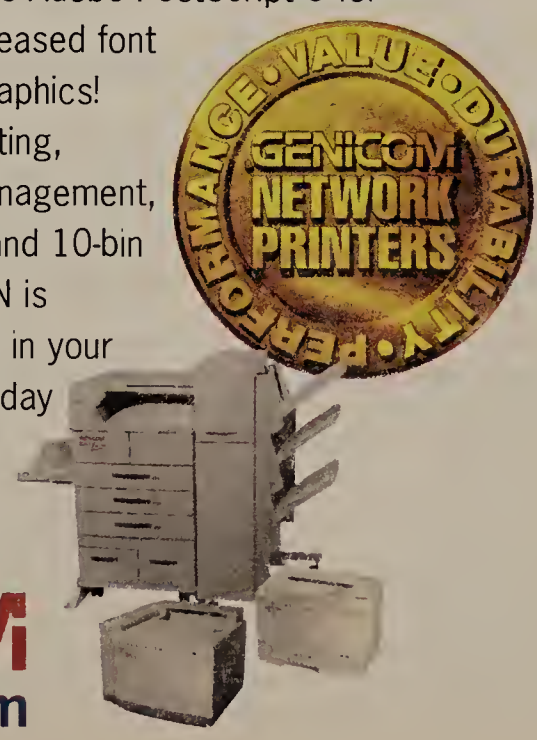

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Technology Update

Covering: Evolving Technologies and Standards

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I have just taken over as a system administrator for a mid-size company. I need to know how often to back up the network and what type of backup rotation to use. Do you have any suggestions?

Via the Internet

The best way to figure out how often to back up the network is to decide how much data you can afford to lose, and how long it would take to re-create information lost since your last backup. There are several types of commonly used backup cycles.

The first step in picking a backup strategy is to look at the logs created by the backup software and check how long the backup takes. Next, see how long the system is idle (without users trying to log on and open files).

If your company runs two shifts, that would give you an eight-hour window. If it takes more than half of your time window to back up the server, you may want to consider doing a full backup on Friday evening with incremental backups Monday through Thursday. An incremental backup only backs up files that have changed since the last full backup.

A required part of the daily backup procedure should be to run a compare pass at the end of the backup cycle. Some backup programs let you run a full compare or compare the first 10M bytes of the backed-up files to see if the data on the tape matches the volume being backed up. A full compare is preferred because it provides the best level of protection from data dropout on backup tapes.

Lastly, you should run a cleaning tape through the backup drive at the intervals recommended by the drive manufacturer.

Taking a look at the basics of ASICs

By Chris Lawler and Kurt Melden

Growth in the demand for bandwidth and advanced functions is outpacing the performance of software routers based solely on Reduced Instruction Set Computing (RISC) processors, making this approach unsuitable for next-generation router design.

Many router designers have begun to supplement or replace RISC processors with full custom Application Specific Integrated Circuits (ASIC).

Basically, ASICs are chips that have been built to act on a particular application. ASICs can consolidate the work of many chips into a single, smaller, faster package, reducing manufacturing and support costs while boosting the speed of the device built with them. ASIC technology is now so advanced that many functions traditionally implemented in software can be migrated to ASICs.

More specifically, ASICs let designers use the power of constantly improving silicon technology to build devices targeted at specific functions, such as routing.

Over the past decade, ASIC technology has seen massive improvements in density and performance driven by the ever smaller processes of the silicon. The latest 0.25-micron ASIC technology supports more than five million gates on a single 150-MHz chip. Ten years ago, 1.5-micron technology could sustain 25-MHz performance. Density was commonly 10,000 to 20,000 gates. Five years ago, 0.6-micron technology could sustain 66-MHz performance and density was commonly 75,000 to 100,000 gates.

A gate is a circuit on the ASIC, and gates can be arranged in a number of ways.

The gate array and number of gates on a chip can determine the ASIC's overall function. Experts predict there could be as many as 10 million gates deployed in computer equipment, and the ASIC industry could be worth some $8 billion by 2005.

Vendors have the choice of customizing all or parts of the gates and the logic it takes to operate them.

ASIC vendors such as IBM offer a basic ASIC library that other vendors can choose from. In the past, basic elements such as memory were standard ASIC fare, but now complex designs — such as Gigabit Ethernet features or support for PCI controllers — or what ASICs vendors call cores, are being added to many ASIC vendor menus.

These technology advances mean that more functions can be moved into hardware, dramatically reducing the number of processing cycles and increasing performance levels as well as functions.

Performance improvements of up to threefold can be achieved through the use of ASICs when compared with the same functions being executed in software.

But when you migrate functions to silicon, there is a trade-off. A fully hard-wired implementation of a router can be inflexible and risky. Standards, particularly as they apply to the WAN edge, are still in a state of flux.

For example, quality-of-service (QoS) mechanisms, such as the IETF's Differentiated Services, are still evolving. New protocols, including Multiprotocol Label Switching and Layer 2 Tunnel Protocol, are just emerging. New IP encapsulation schemes are being proposed.

As a result, it would be ill-advised to hard-wire various frame processing functions into ASICs for quite some time.

A better approach might be a precise blend of RISC and ASIC technology. This approach provides the ultimate flexibility of a RISC processor with the performance, density and cost benefits of a fully hard-wired ASIC solution.

Generic functions, such as buffer management, queue management, QoS scheduling, address lookup and flow classification, can be off-loaded to ASIC silicon with no risk.

Packet-header processing functions, such as Layer 2 and Layer 3 packet-header parsing and modifications, along with QoS control, statistics harvesting and other "likely-to-change" functions, can be partitioned onto RISC processors for flexibility.

Deciding how many packet-header processing functions should be hard-wired and how many should be downloaded in firmware to a programmable RISC processor will require different trade-offs.

The correct blend ultimately depends on the market segment being targeted by the designers of a particular switch or router.

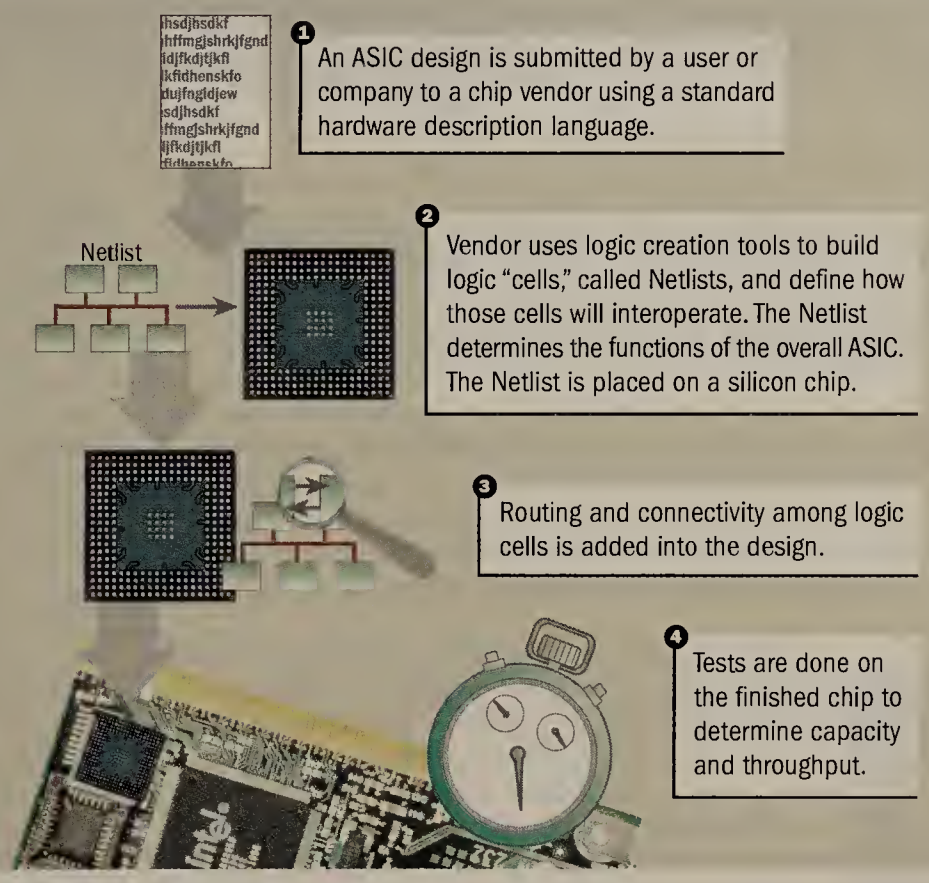
Software-only implementations of switches and routers are flexible but do not have adequate performance, particularly when it comes to implementing advanced features such as QoS. Hard-wired ASIC implementations will provide very high performance but will not provide the flexibility so important to the WAN edge.

Lawler and Melden are co-founders of Redstone Communications, a start-up specializing in packet-switched network devices. They can be reached at clawler@redstonecom.com and kmelden@redstonecom.com.

UP CLOSE

Application Specific Integrated Circuits

ASICs are a collection of logic and memory circuits on a single silicon chip. They can be customized to handle everything from automobile control systems to video games. The driving ideas behind ASICs are improved performance and lower cost for the systems they run.



1. An ASIC design is submitted by a user or company to a chip vendor using a standard hardware description language.
2. Vendor uses logic creation tools to build logic "cells," called Netlists, and define how those cells will interoperate. The Netlist determines the functions of the overall ASIC. The Netlist is placed on a silicon chip.
3. Routing and connectivity among logic cells is added into the design.
4. Tests are done on the finished chip to determine capacity and throughput.

EDITORIAL *insights*

AOL, Netscape and Internet economics

Netscape ain't worth $4.2 billion.

There. I said it. When it comes to the America Online buyout of Netscape, the emperor's got no clothes. In fact, he's stark bloody naked.

Now, I'm a journalist, not a business expert; I basically fumble through corporate financial statements. But I do know what it means when the number on the "net income (loss)" line is in parentheses. It means the company is in the red. And that's what I see on Netscape's statement — a net loss of $115 million last year and a 1998 loss of $51 million as of Oct. 31.

So how, given the company is losing money, does AOL figure Netscape is worth $4.2 billion?

You hear talk about brand, the idea that Netscape has all kinds of people coming to its Web site — excuse me, I mean its "portal" — and these folks share an affinity for the Netscape brand.

No, they don't. Folks go to Netcenter because they're looking for something else. If they find it, they'll probably use the site again. If not, they'll try another one. Either way, how does Netscape make money out of the deal? "Because people click on ads," the pundits say. Oh, really? I pretty much never do. Do you? I didn't think so.

Maybe AOL is after the Netscape server software and groupware applications. OK, that makes sense, but $4.2 billion? Couldn't AOL just hammer out some kind of resale arrangement? As part of the AOL/Netscape deal, Sun paid $350 million for the right to resell Netscape software. Sounds like a bargain next to AOL's tab.

The same goes for the expertise AOL says it is buying, to help users build electronic commerce sites. Sure, Netscape has some expertise to help in that effort, but $4.2 billion will buy you an awful lot of expertise from any number of sources.

It's not just AOL that's gone crazy here. The same thing is happening with other Internet companies, Yahoo! being a good example. Yahoo! went public in 1996, has a market cap of some $19 billion, is trading at around $200 per share, but has yet to show it can consistently string together profitable quarters. It's another portal company, a big Internet "brand" with some amorphous potential.

Why, when it comes to the Internet, do basic economic ideas, such as turning a profit, not matter anymore? I understand investing in something you think will eventually be successful, but it strikes me that you should have a pretty good idea where the profit will come from — especially if you're betting $4.2 billion.

Paul Desmond, features editor pdesmond@nww.com

Venture Over the Horizon • Kevin Fong

The network implications of digital television

Recently, newly public Broadcast.com got a big boost when it made available on the Internet the full video of President Clinton's testimony before the grand jury. More than one million 'Net visitors logged on to watch the admittedly poor-quality video on their computers. The most laudable thing about this event was that these one million or so people did not bring down Broadcast.com's servers.

In fact, as everyone knows, the Internet is ill-suited for broadcasting the big chunks of data that make up video. The bandwidth is still too limited, and the 'Net's architecture introduces latency, which is death to data that needs to be sent in continuous streams.

A better way to broadcast video, however, is on the horizon and will radically change the way you need to think about your network architecture. These new networks will actually owe much to what is happening to digital television (DTV): broadcast video meets the Web.

The excitement over DTV largely has focused on the crisp, high-definition entertainment that it will provide. But the broadband spectrum the FCC gave broadcasters for transmitting digital pictures could also become a data network. Once TV broadcasts move from today's analog transmissions to digital service, it will be possible to take traditional TV programming as well as Internet- or Web-cached data, combine them and broadcast them as one digital stream to a TV or PC.

Data broadcasting, which is based on a one-to-many model, should be fast and inexpensive enough to make it suitable for many corporate applications. A number of companies already have private video networks that they use for broadcasting executive speeches, training videos and corporate news. But the advent of a broadcast infrastructure that merges MPEG video and IP data, and that is inexpensive and ubiquitous, will lead to a much broader set of applications.

I can envision a kind of super Bloomberg service in which financial data is combined with video of Alan Greenspan announcing the latest interest rate cuts or increases. Weather broadcasts would certainly be of interest to pilots. Corporations could broadcast price lists that are continually updated. Workers in remote offices could easily receive the bulk data they need from headquarters.

An enormous amount of work needs to be done to build the infrastructure for these broadcast networks. Codecs, servers, networking technology and broadcast equipment are just some of the pieces necessary to make the transition from analog to digital video. SkyStream, one of Mayfield Fund's investments, has pioneered a new category of broadcast networking equipment called integrators that combines MPEG video and IP-based data.

Another Mayfield investment, Omneon Video Networks, is developing a network architecture to enable broadcasters to manage hundreds of channels and hundreds of hours of recording time. This same video network infrastructure can be used in corporations for mainstream communication.

For a brief and shining moment, it looked as if push technology would provide people with data that they themselves had selected. As it turned out, push could not economically provide this service. Broadcast networks, on the other hand, should be able to provide a very cost-effective way of delivering this select data.

As video becomes inexpensive and easy to deploy, using video more widely for corporate communications saves dollars and makes sense. Combining video with the power of the Web brings us to the threshold of a brave new world. The Web plus broadcast video is the next big step for the Internet.

Fong is a general partner of Mayfield Fund, a venture capital firm based in Menlo Park, Calif. He can be reached at kfong@mayfield.com.

Send letters to nwnews@nww.com or John Gallant, editor in chief, Network World, 161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification

Hypocrites are fair game

Regarding Mark Gibbs' column "Airing your dirty little secrets" (Nov. 9, page 77), in which he discusses Dr. Laura Schlessinger's fight to keep nude photos of her from being displayed on the Internet:

It seems to me that Gibbs didn't touch on the key point. Up until now, all of the dirty secrets I've seen exposed on the Internet have been those of hypocrites. Dr. Laura took a holier-than-thou stance, and one of the "thous" got fed up with it.

The situation is the same with Congress. It was the

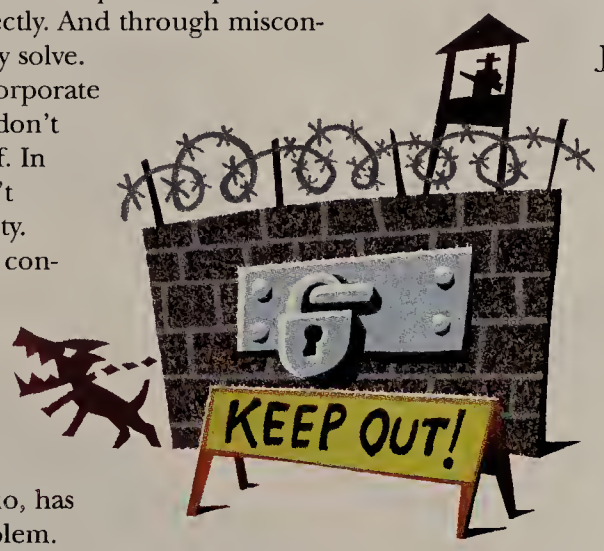
A good defense goes to the desktop

Traditionally, we use firewalls to protect corporate networks from the inappropriate behavior of Internet rebels or to control corporate users' actions on the 'Net. Intranet firewalls isolate corporate networks from one another according to prescribed policy.

But there is a problem with firewalls. According to firewall mavens — such as Marcus Ranum, CEO of Network Flight Recorder, and Fred Cohen, principal scientist at Sandia National Laboratories and "inventor" of the computer virus — buying, installing, configuring and managing a firewall properly can be terrifically, if not prohibitively, expensive. Thus, too many companies leave their network perimeters unprotected due to the sheer cost and vigilant effort required to protect them. Those that do install firewalls often do so incorrectly. And through misconfiguration, firewalls can create more problems than they solve.

Here's where the concept of "defense in depth" for corporate networks comes into play. Defense in depth means you don't depend on a single security approach to protect yourself. In other words, even if a firewall is properly managed, don't rely solely on it; use something else for additional security.

Many companies use expensive and hard-to-manage conventional firewalls for Internet, extranet and intranet protection against a suite of weaknesses: denial-of-service attacks, network sniffing, and wide-open file and server sharing. But what about security at the desktop itself? Defense in depth can apply anywhere, right?



MARTY BRAUN

Signal 9 Solutions, a security vendor based in Ontario, has introduced a product that might well address this problem. PCFirewall is a unique and inexpensive approach to network protection at the desktop that can add an additional layer, providing defense in depth.

PCFirewall sits at the data link layer, below the operating system, and examines packets as they come into the desktop or intranet server, before they can do damage. Signal 9 claims that PCFirewall summarily dismisses denial-of-service attacks, which would be a boon even for companies whose only security concern is keeping their Web servers up and running.

However, Signal 9 also promotes PCFirewall as a personal firewall, potentially ideal for companies that have telecommuters or road warriors who connect from anywhere at any time. Defense in depth again: Protect the remote machine as it becomes part of your network through dedicated IP address, dial-up connectivity or wider-band, 24-7 connections such as cable modems.

Cable modems provide users with fabulous, inexpensive bandwidth — but not an ounce of security. Anyone sharing your local cable-modem loop can search your desktop contents without your knowledge — so a "down and dirty" firewall is critical to prevent security breaches.

And then there's the true Wild West of the Internet: Internet Relay Chat (IRC). IRC is often like descending into Dante's Inferno. Slam! Blam! Nuke! And you're sent careening off the channel; or even worse, your entire PC needs a reboot. Unpleasant to say the least, but PCFirewall allows infowarriors to withstand the most egregious IRC attacks, as well as the new breed of ugly remote administrative attacks such as Back Orifice or NetBus.

However, PCFirewall is not a panacea. "It won't protect you from Java or Active X attacks. They sit at the application layer — we don't," says Signal 9 CEO Phil Atfield. (See www.finjan.com and www.nai.com for mobile code protection products.) Also, PCFirewall does not attempt to challenge the high end of the firewall market and is not a proxy server. But by combining PCFirewall with other PC Proxy Server products, Signal 9 claims you can build a simple yet effective gateway firewall.

But all things are not emerald in Oz, Dorothy! The PCFirewall documentation is not as understandable as it should be. Signal 9 needs to spell out in clear, nontechnical English exactly how PCFirewall can be configured for real-world needs and give lots of simple, real-life examples. A poorly documented product causes an inevitable flood of support calls.

You can take PCFirewall for a free, 30-day test drive at www.signal9.com. But if you like it, the hard part comes next: You'll have to shell out $49.95 for a single copy. The NT version is a hefty $150.

I haven't yet found another product that compares with PCFirewall, so if you hear of one, please let me know. In the meantime, I don't see how you can go wrong looking into this novel approach to desktop security or adding an additional layer of defense in depth. A senior security manager at a large financial institution told me, "PCFirewall does 97% of what big expensive firewalls do — at 3% of the cost. We take this approach seriously."

Schwartau is chief operating officer of Security Experts, an information security consulting firm in Seminole, Fla., and president of InfoWar.Com, a leading security Web site. He can be reached at winn@securityexperts.com or winn@infowar.com.

preaching, posturing and moralizing of Henry Hyde and Dan Burton that led to their affairs being exposed.

The Republicans and their allies still don't understand the reason that the American people refuse to turn on Clinton. The people don't like his behavior, and they especially don't like his lying, but they are willing to tolerate him because he hasn't spent the last six or however many years preaching the sanctity of marriage. Whatever else Clinton is, he's no more of a hypocrite than he's forced to be as a politician.

Bill Cleere
Sunnyvale, Calif.

Address unknown

I couldn't agree more with your editorial calling for companies to make their e-mail address books public ("A plea for logic in e-mail addressing," Nov. 16, page 50). I've tried for years to get my boss to allow me to put a link from our public Web site to our phone and e-mail directory. He steadfastly refuses. He is terrified that a recruiter or competitor would use it to solicit our staff with job offers.

I do try to make e-mail aliases for the more common permutations of our key employees' names. And I have our mail system set up to copy me on any bounces it generates.

If I see that the message is from a "real person" (for example, not spam), I try to figure out whom that person was attempting to reach. Then I forward the message on to the intended recipient and write back to the sender to tell him the correct address to use in the future.

Perhaps if more corporate postmasters were to do this, it would alleviate (at least somewhat) the iterative process of guessing somebody's e-mail address.

Christopher Wysocki
Verona, N.J.

I also agree that everyone needs to standardize on an e-mail addressing scheme, but it's hard to do.

In my company, we first had to fight this out in the Novell network logon scheme. The problem is that some of our end users have the same initials, and others have the same first and last names.

So I got together with our human resources department, and we standardized on a convention that uses the first five letters of an end user's last name and their three-digit telephone extension (for example, smith407@ourcompany.com).

It's not pretty, but it works for us.

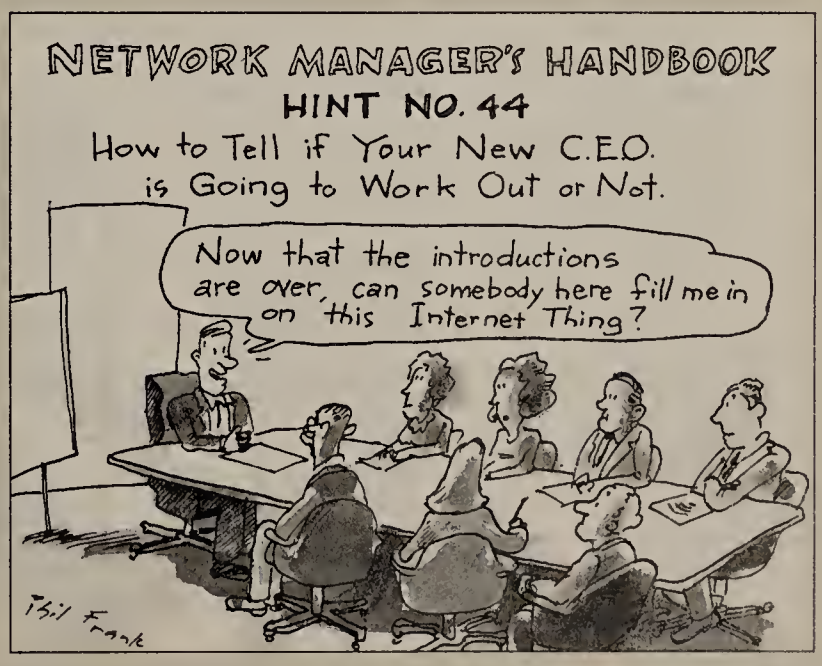
Rick Weible
Network administrator
ServCom Associates
Edina, Minn.

You wonder why we guard our e-mail addresses as if they were precious jewels? The answer is contained in one word — spam. Stop the unsolicited e-mail, and you would find people less reluctant to give out their e-mail addresses.

I never give my e-mail address on subscription forms or response cards because I get enough mail that deals with my job as it is. You will have one more convert to your crusade when those who are given e-mail addresses use them responsibly.

Michael Disabato
Technologist
McDonald's
Oak Brook, Ill.

Teletoons



PHIL FRANK AND JOE TROISE BABABOOFGATE.COM

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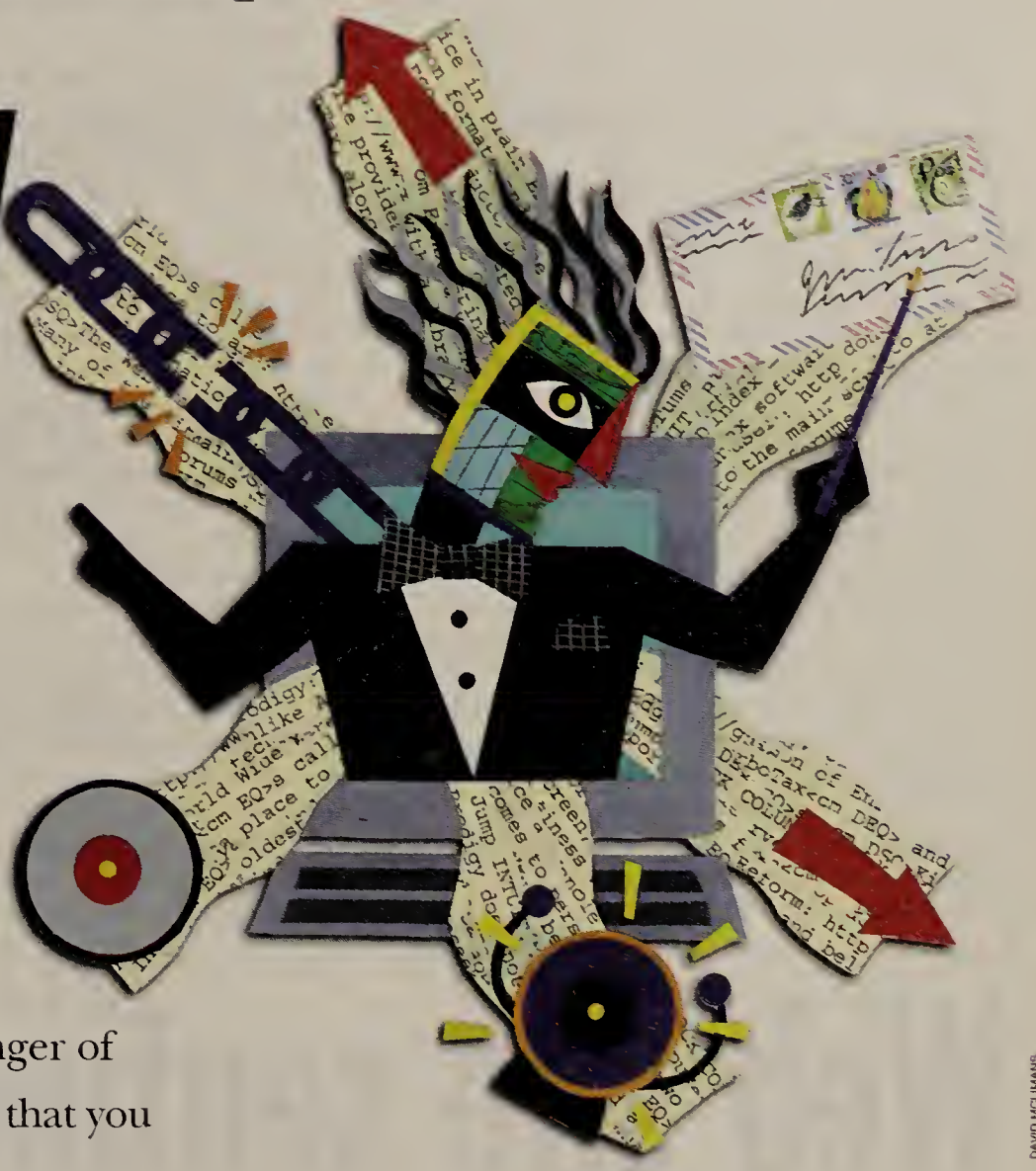

DAVID MCLIMANS

Ease your burden with tools that track site status, monitor server performance and identify trouble spots.

By Deni Connor

Wouldn't you rather find out about a broken link on your company's Web site on your own than from an angry boss or online customer? And wouldn't it be great to know when you're in danger of running out of disk space? Or to have some warning that you need to restart a failing Web server?

ISSUES AND TRENDS

Any problem that threatens to interrupt or slow down Web service is cause for alarm. Fortunately, software tools that can sound the alarms are starting to appear. These tools perform several functions, which can be divided into two main areas: active site monitoring and content management.

Active site monitoring covers server configuration and availability, as well as traffic management, for starters. Content management involves site mapping, identifying orphan pages, and checking and repairing broken site links.

Most products available today deliver a mix of these features, combining site monitoring and content management features. Some functions, such as load balancing, are tough to find in the multifunction products we looked at; others are fairly standard. Link checking, for example, is common to 18 of the 20 products in our online Buyer's Guide chart. Neither WebSpective 2.1 from WebSpective Software (which changed its name from Atreve Software late last month) nor Xpertrak/Net 2.5 from TransOmega perform pure link checking. However, both can unearth broken links indirectly through content distribution checks and HTML page monitoring, respectively.

Another standard function is reporting. Only BMC Software's Patrol Knowledge Module for Secured Servers doesn't include a selection of predefined reports, though it does display client usage statistics in real time. And all but four products include filters to customize reports.

We start to see some differentiation in the products' alerting features, which play a critical role in keeping you one step ahead of dissatisfied users. If certain thresholds are reached or certain events occur, most products can send alerts by multiple means, such as pager, e-mail, SNMP, server console, or writing to a log file. However, six products in our chart fail to include any alerting mechanism.

Stay in control

Webmasters need to be able to control Web servers and applications from a centralized location, to perform tasks such as adding and removing hosts, deactivating Web servers for maintenance, and viewing the status of all site components, for example. The more robust tools allow you to apply changes to individual servers or entire Web applications.

You should expect an active site monitoring tool to provide real-time server monitoring and

INSIDE

Review: Our Blue Ribbon goes to WebTrends' Enterprise Suite 3.0 for its expert log file analysis and quality assurance reporting. **Page 56.**

Tomorrow's heavyweight? Computer Associates is adding MasterIT to the Web management ring. **Page 62.**

ONLINE

Interactive Buyer's Guide chart: Home in on the product that's just right for you, choosing from these 20 vendors:

- Advanced Internet Management
- Avesta Technologies
- BiggByte Software
- BMC Software
- Coast Software
- Computer Associates
- Electronic Software Publishing
- Freshwater Software
- Greyscale Systems
- Heroix
- Mercury Interactive
- Microsoft
- Platinum Technology
- RSW Software
- Tetranet Software
- TransOmega
- WebManage Technologies
- WebSpective Software
- WebTrends
- WindDance Networks

failure detection and be able to restart a failed server. For a cut above the rest, look for those few products that can distribute traffic around a broken server link and/or a failed server. Only WebSpective and WebManage Technologies' SiteMARC do both. WindDance Networks' WebChallenger (which was just renamed JetStream) will distribute traffic around a failed server but not around a broken server link.

If you're in the market for a strong content management application, consider products that can do more than just pinpoint broken links or access problems. Some products allow you to edit and repair broken links from within the application; others allow you to search for and replace one or more incorrect links on all pages at once. Two products in our chart offer all of the above link functions: Coast Software's WebMaster 3.0 and Greyscale Systems' SiteMan Website Manager.

Mapping features can help you identify key usage patterns for improving Web site effectiveness. For example, you can find the most traversed path through your site, or ask to see a specific user's path. Typically, products support one or more ways to view lists of files, such as by path, filename, title, author, size or creation date. The creation date option is important if you need to be able to compare maps as your site changes. Also be aware that not all site-monitoring products can map local and remote Web servers.

As Web sites grow in complexity, so do the demands users place on them. Visitors expect faster response times and greater availability. One way to improve service is to provide dynamic, intelligent load balancing across distributed Web servers. If you decide to go this route, pay special attention to load-balancing algorithms. Do they only factor in the availability of the Web servers? Or, do they look at the big picture, taking into account the complete application, including back-end databases and pages, as WebSpective and SiteMARC do?

Managing Web content is no small task when you have multiple applications running across mirrored servers throughout a geographically dispersed Web site. In this scenario, content distribution is a critical part of Web site management. You need to make sure you have control over how, when and where content is distributed. You will also want to find tools that can automate synchronous and secure updates. The product also should ensure that users always have access to appropriate content, even when the Web server they are connecting to is being updated.

Get more online:

- **The Interactive Buyer's Guide, featuring Web management software from 20 vendors**
- **Management tips from Microsoft Webmasters**
- **The scoop on load-balancing algorithms**

www.nwfusion.com

Analysis and reporting

Web management software should play a proactive role in server and application performance management. This effort involves monitoring statistics regarding the load and performance of Web applications, Web servers, host machines and network interfaces.

A comprehensive tool will collect real-time and historical information and display it in administrator-configurable graphs. You may want an application that centralizes the data in a relational database for flexible reporting and analysis. Or you may choose an application that simply reads and analyzes the data from the existing log file.

Whichever route you take, you want a tool that lets you perform historical trend analyses and capacity planning and then generate meaningful reports. Look for as much customization as possible, such as the ability to use third-party reporting tools and to manipulate report layouts.

You may not find one tool that will do everything you want, just as one brand of Web server or operating system might not suffice for your particular environment. It's all right to mix and match, as long as you cover all the bases.

Connor is a senior editor with Network World. *She can be reached at dconnor@nww.com.*

Web site sentinels

These three Web management tools have different styles, but one proves best at keeping your site running smoothly: WebTrends' Enterprise Suite 3.0.

By Thomas Powell

REVIEW

Web management is hot, and a hot market means one sure thing: Don't blink or you'll miss something. Take the three vendors that accepted our invitation to test their Web management software and the one vendor that gave us a sneak peek at its upcoming product; each company is in the throes of revamping an existing package or introducing a brand-new product.

Why the push? Because all of a sudden, the reliability and speed of corporate Web sites are top priorities. What were once internal skunkworks projects are now critical electronic business venues. Web site administrators need help monitoring server conditions, planning for capacity, managing site traffic and analyzing usage trends. While we found no product that performs all of these Web management tasks flawlessly, each of the products we reviewed solves a portion of the problem.

Released in late November, WebTrends' Enterprise Suite 3.0 earns our Blue Ribbon award for its ease of use and its detailed quality assurance reports. WebTrends has a firm hold on site content management and log file analysis, and Enterprise Suite 3.0 is clearly a market leader in these areas. Enterprise Suite 3.0's site monitoring facilities are adequate for smaller sites, and its basic alerting will be useful for many administrators who currently have no alarm provisions.

Product: WebTrends' Enterprise Suite 3.0

Vendor: WebTrends

NetworkWorld Blue Ribbon

Ease of use distinguishes WebTrends' newly released Enterprise Suite 3.0, which delivers comprehensive log file analysis and solid site quality reports.

A great complement to WebTrends' Enterprise Suite 3.0 is Freshwater Software's SiteScope 3.1, which excels at monitoring and alerting, though it lags in content management. We tested SiteScope 3.1; Freshwater released Version 3.2 in mid-November, and Version 4.0 is due in early 1999.

WindDance Networks' WebChallenger contains a powerful arsenal of tools, including benchmarking and server discovery features not found in other Web management suites. However, there's no Web management task at which WebChallenger truly excels. Also, WebChallenger's user interface is woefully poor. Stay tuned, though, because it too is a work in progress. As we go to press, WindDance Networks is relaunching WebChallenger as JetStream. The

Continued on page 60

Score Card

	Monitoring and alerting (40%)	Site quality analysis (30%)	Log file analysis (10%)	User interface (10%)	Installation (5%)	Documentation (5%)	Total score
Blue Ribbon WebTrends' Enterprise Suite 3.0	7 x .40 = 2.80	9 x .30 = 2.70	10 x .10 = 1.00	10 x .10 = 1.00	10 x .05 = 0.50	9 x .05 = 0.45	8.45
SiteScope 3.1	9 x .40 = 3.60	7 x .30 = 2.10	4 x .10 = 0.40	9 x .10 = 0.90	10 x .05 = 0.50	9 x .05 = 0.45	7.95
WebChallenger	7 x .40 = 2.80	7 x .30 = 2.10	7 x .10 = 0.70	5 x .10 = 0.50	10 x .05 = 0.50	6 x .05 = 0.30	6.90

Individual category scores are based on a scale of 1 to 10. **Percentages** are the weight given each category in determining the **total score.**

e-business

IBM ANNOUNCES A WEB SERVER THAT CAN HANDLE 20 MILLION TRANSACTIONS A DAY.

CAN SUPPORT UP TO 50,000 USERS.

CAN DELIVER 99.999% AVAILABILITY.

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SURPRISE, IT'S YOUR IBM S/390® ENTERPRISE SERVER. e-business isn't just about having a Web site. It's far beyond that. e-business is about conducting a huge amount of electronic transactions between you, your customers, your suppliers – everyone. So the large enterprise server you bought a while back has become the best Web server available. Suddenly, all those issues which led to your original S/390 decision are at play on a scale larger than ever envisioned.

Which means your S/390 server wasn't as much a hardware purchase as it was a strategic choice. Placing your enterprise data on your S/390 means that information doesn't need to be replicated and can always be up-to-date.

As it stands, you have a Web server with the security and availability you'll need in the next century: your S/390.

To date, 1,700 new or modernized Web applications are available for the S/390, with close to a thousand new ones on the way.

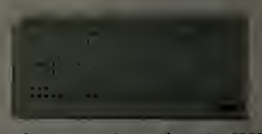
IBM S/390. INSTANT WEB SERVER.

If you think about it, you have an enormous wealth of data on your S/390. By transforming their own S/390 enterprise server, many e-businesses have found themselves able to extend their existing system and leverage the data that resides there.

Take Volvo, for example. They Web-enabled an S/390 to access corporate data, thereby integrating delivery schedules and spare parts and technical information for dealers. The results are greatly improved customer service and higher profit.

The Web conversion happens at the software level and involves minimum hassle. In fact, you can create a secure, 24-hour front door to your business without needing to cobble together additional servers and software.

Customers can track orders and check the status of their accounts online. Partners can collaborate with you at all hours to wring time out of the production cycle. Suppliers can post to your payment systems in real time.



After three decades of transformation, the IBM S/390 server sets the standard for e-business transaction serving.

The IBM S/390 hums along with no more than five minutes of planned or unplanned downtime. A year.

24/7/365 ISN'T A LOCKER COMBINATION.

The hottest topics in computing today are scalability, security, and most of all, availability – issues that were once talked about primarily at the mainframe level. Now server companies are claiming mainframe attributes for their UNIX® and PC servers (in fact, chances are that at least one of your PC or UNIX servers is down right now).

These distributed servers are not an S/390 enterprise server and never will be. Not alone, not clustered together. And in an e-business environment, deploying a clutch of servers that can't deliver 24x7 availability is like locking customers out of the store. Customers who can go to a competitor's site with two clicks of the mouse.

However, with the latest generation of S/390 Parallel Sysplex® technology, you are guaranteed the closest thing to continuous computing, with a design point of 99.999% availability. As a Web server, it's capable of handling up to 400,000,000 hits or 20,000,000 transactions a day, or up to 50,000 users simultaneously.

A network based on multiple servers can be open to multiple problems. And enormous complexity equals enormous costs.

RUN A DATA MINE, NOT A SERVER FARM.

An infrastructure built on multiple servers can be open to multiple management problems. Just deploying a new major application requires a visit to each and every server. And in the environment of enterprise computing, it's a mathematical fact that enormous complexity equals enormous costs (no wonder Wachovia chose to eliminate 90 percent of the office automation servers in their information services department through an S/390 consolidation).

With your S/390 only a single copy of a program needs to be changed on the server in order to improve the interface of your Web site, deploy a new ERP program or upgrade your e-mail capabilities.

Instead of putting critical business applications at the fingertips of the users who need them, PC, and even many UNIX servers, create islands of information that can be nearly impossible to keep up-to-date.

Your bulletproof S/390, on the other hand, is a network of one, and has the ability to extract insight from mountains of information and reveal relationships and trends that were previously invisible.

2,300 organizations have Web-enabled large enterprise servers. By 2000, more than 10,000 will be operational.

LOWER COSTS.

The transactional costs of e-business can be a fraction of those of traditional commerce. You already know that.

But costs can still vary wildly depending on what hardware strategy you use. As their Web volume grows and companies use the network to perform vital tasks like managing their supply chains or implementing customer service apps, the benefits of one scalable enterprise server over dozens or even hundreds of smaller servers become apparent.

An International Technology Group' survey found that with true enterprise servers, the average cost per use in transaction processing was 76 percent lower than for centralized UNIX servers.

That's a staggering difference. With your S/390 server, you get what is described by industry consultants as the lowest cost-per-user computing environment in the industry.

SO WHERE DO YOU GO FROM HERE? Whom do you talk with to transform your S/390 into your enterprise Web server? IBM can provide a way to get your existing set of servers consolidated and to train your staff to manage and continue the process. Our entire organization is ready to help your company run more efficiently, more quickly and more profitably.

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e-business


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Net Results

	PROS	CONS
WebTrends' Enterprise Suite 3.0 *WebTrends* *(503) 294-7025* *www.webtrends.com* *Pricing: $1,499 for 1,000 domains*	▲ Detailed log file analysis and quality assurance reports ▲ Easy to use	▼ Lacks detailed monitoring choices
SiteScope 3.1 *Freshwater Software* *(303) 443-2266* *www.freshtech.com* *Pricing: $495 per NT server, $1,295 per Unix server*	▲ Detailed alert capabilities ▲ Easy to use	▼ Lacks site and log analysis tools
WebChallenger *WindDance Networks* *(613) 728-1700* *www.winddancenet.com* *Pricing: See Interactive Buyer's Guide (www.nwfusion.com, DocFinder: 9421) for new JetStream pricing*	▲ Includes load simulation and network analysis tools ▲ Passive network monitoring	▼ Poor interface ▼ Allows minimal customization for alerts

Continued from page 56

features we tested are the same, but the name is new and the repackaged version will have a new, purportedly cleaner interface.

Finally, we looked at a late beta version of MasterIT from Computer Associates International (see story, page 62). MasterIT is a new product from Computer Associates, which has a history in network management, and it's a good one. Our initial inspection indicates that MasterIT may set a new high mark for site monitoring and alarming when it's released this month.

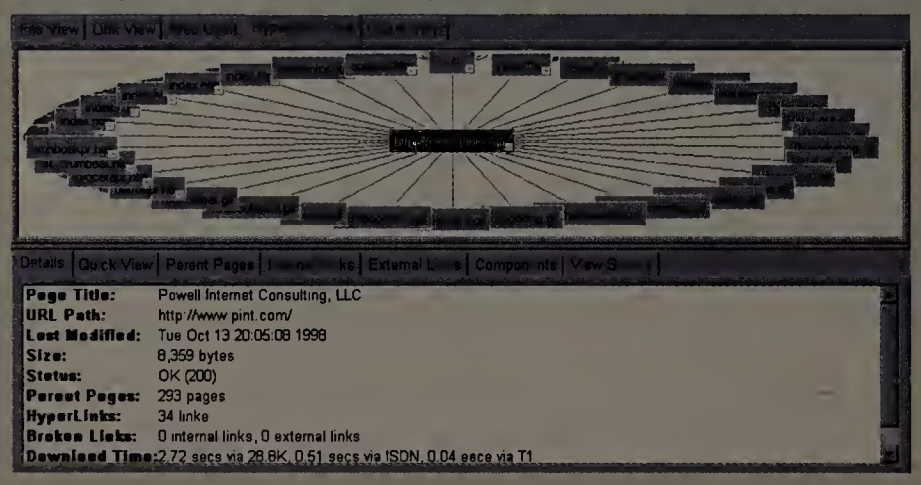
Monitoring fundamentals

Originally a simple log file analysis tool, WebTrends' Enterprise Suite 3.0 today is a Web management tool that monitors site quality, checks links, conducts proxy file analysis and alerts you when your site needs attention. It's a reasonably powerful program with minimal needs: You can run Enterprise Suite 3.0 from any Windows 95, 98 or NT system with 16M bytes of RAM and 20M bytes of disk space.

Monitoring functions track server availability, document availability by URL, SNMP traps, disk space use, Web server logs, NT logs, and the status of various IP-based services such as Domain Name System (DNS). Enterprise Suite 3.0 lets you check thresholds at regular intervals and designate alert mechanisms, including audible alarms, e-mail messages and pages. The product also addresses recovery: Alarms can trigger as many as three actions, including running a program, restarting a service or rebooting a system.

WEBTRENDS' ENTERPRISE SUITE 3.0

Site management console combines a graphic view of site structure and text details.



In general, however, we found Enterprise Suite 3.0's monitoring features pretty basic. For example, the software doesn't allow you to monitor server performance, network utilization or the contents of a file. These checks are crucial if you're trying to deal proactively with traffic increases, rather than simply responding after a service fails.

Enterprise Suite 3.0's file integrity-checking function is also simplistic. The feature looks primarily at file size and time stamps; more complex integrity checkers can search for a particular string in the contents of a file. This distinction is important when you consider monitoring a dynamically generated page. What happens if pages are built properly but the program fails and the content isn't placed on the page? A simple URL checker wouldn't notice a problem, and because the page is dynamically built, a file size or time stamp checker would be inappropriate.

Enterprise Suite 3.0's link checking and site quality features identify broken links, large or slow pages, very old or very new pages and general HTML problems, such as missing height and width attributes for images. You can run link checks at any time or schedule runs for later, and you can customize reports or make use of predefined reports, such as one that displays all images used in a Web site.

While the ability to check links is nothing new, Enterprise Suite 3.0's handy integrated site management console is. WebTrends can display site analysis information in a variety of formats, including an interactive hyperbolic tree, file view, link view, Web chart and grouping view. The graphic views allow you to look at site structure, navigate the site and even view the underlying source. Once you isolate a problem, you can launch a third-party HTML editor directly from the management console.

Given its origins, it's not surprising that we found the strongest aspect of Enterprise Suite 3.0 to be its log file analysis support. Like previous versions, this product balances simplicity with power. The built-in log file reports range from basic executive summaries showing site usage patterns to advanced reports that include banner ad tracking and search engine phrase monitoring. You can save the fully customizable reports in a variety of formats, including HTML, Microsoft Word, Excel and comma-delimited or ASCII text. A scheduler can automatically retrieve logs from a disk, by File Transfer Protocol (FTP) or even HTTP. Once the results are processed, you can save the results to a disk, upload them via FTP to a remote system, or e-mail a report to interested parties.

While log files show historical site information, you can set the program to constantly refresh the log information for your reports. That feature, along with this version's improved processing speed, makes near real-time monitoring possible. Speed improvements are partially due to the inclusion of FastTrends, a caching database that stores the results of processed logs.

Other interesting log analysis features include support for clusters and proxy server logs, filters to sort out multiple domains served from a single machine, Open Database Connectivity support for access to log files stored in databases, and the ability to run reports from a remote Web browser. Finally, intranet users may appreciate the ability to provide meaningful naming schemes for IP addresses and machines. This feature allows you to associate addresses and machines with departments or other groupings in internal log file reports.

Focus on site status

For Web site alerting and monitoring, Freshwater Software's SiteScope is hard to beat. The program runs on Windows NT, Irix and Solaris, and consists of a Java server application accessed via a Web browser interface. The interface provides a simple control panel that lets you visually monitor Web services. You can set alarms graphically to be sent via e-mail, SNMP trap and pager.

Setting up site monitors with SiteScope is fairly simple. Like the other products, SiteScope offers ping checks and monitors the availability of services including DNS, FTP, news and mail. You can also watch basic system services such as disk space availability, memory use and CPU utilization; and you can request that warnings be issued when thresholds are reached. Additionally, SiteScope monitors log files for error messages and checks statistics logs to determine hits per minute or bytes transferred per minute, for example.

One interesting aspect of SiteScope's monitoring is its robust URL and file monitoring function. Like most Web management suites, SiteScope can check for the existence of a file as well as monitor the size and date of the last file modification. However, as we noted with WebTrends' Enterprise Suite 3.0, these checks are not useful when you're dealing with dynamically generated pages. For this reason, SiteScope lets you examine the contents of a generated file for a particular string as well as check for the proper execution of a script that may generate a file.

Besides monitoring files, SiteScope can also watch a sequence of URLs or actions that emu-

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- **A review of Web log analyzers**
- **How to specify Web site benchmarks**

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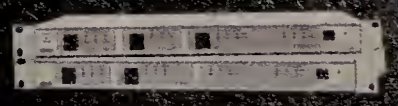

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late a typical user transaction, such as filling out a sequence of forms and downloading a software package. Using a facility called Deep Monitoring, SiteScope not only monitors the success or failure of the transaction as a whole, but lets you look at the steps that comprise a transaction if a failure occurs.

One interesting twist to Freshwater's Web monitoring approach is an optional subscription service called Global SiteSeer, which monitors your Web site from various locations on the Internet. Public Web site administrators may find the user-oriented perspective that Global SiteSeer provides more interesting than any internal-based alarm system.

Up to the challenge?

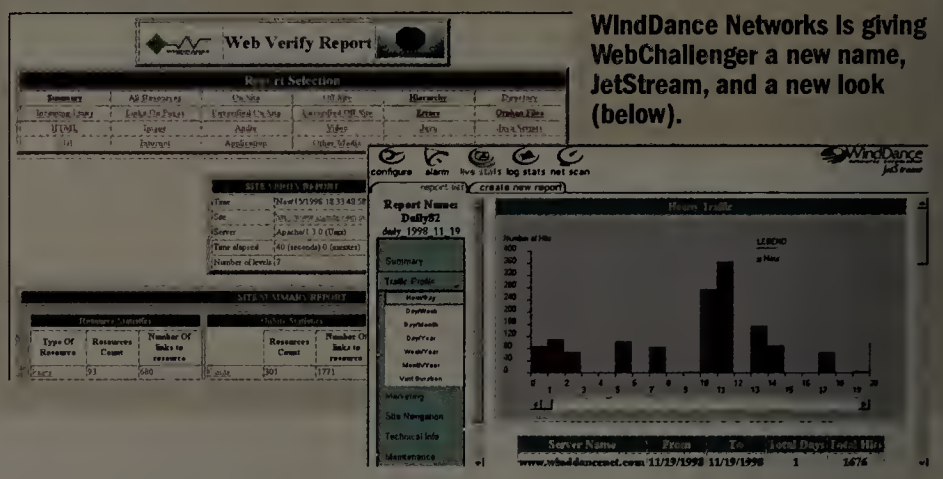
WebChallenger from WindDance Networks has some of the most interesting features we found in our tests, but the product is hampered by a clunky interface. If you have 1,024-by-768-pixel resolution or better and are willing to deal with an unpolished HTML- and Java-based browser interface, you'll discover a wealth of useful tools.

WebChallenger requires an NT 4.0 workstation or server with 32M bytes of RAM and more than 100M bytes of free disk space. WebChallenger does not run on the same machine as the Web server and does not require a remote component on monitored servers. Even so, it provides sophisticated network and server monitoring.

Once installed on a client PC, WebChallenger passively watches traffic on its network segment. It can monitor bandwidth usage and page requests sent to any Web server on the network, regardless of operating system or server version.

The product is built around six primary tools: Web Alarm, Web Benchmark, Web Diagnosis, Web Explorer, Web Statistics and Web Verify.

WEBCHALLENGER



WindDance Networks is giving WebChallenger a new name, JetStream, and a new look (below).

Web Alarm includes some nice features that are useful for catching server failures before they happen. For example, Web Alarm can notify you if server response time falls below a specified threshold or if server throughput slows to less than a specified level. Basic monitoring, such as probing, to see if a server is available or if a network service port is live, can also trigger an alarm.

In general, however, we found WebChallenger's alarm configuration to be subpar. You can designate only one e-mail address to send alerts to, regardless of the type of alarm. Furthermore, the simple pager interface lacks configuration capabilities. For example, you can't directly provide complex pager access scripts that deal with alphanumeric paging systems.

We were more impressed with the Web Benchmark component, which tests server capacity and response time. You can set loads to simulate multiple clients, and you can program each client to look at a particular number of URLs per test cycle. After benchmarking a server, WebChallenger produces a report that includes transactions per minute, as well as throughput and response time in milliseconds. While more complex Web server load-testing products exist, Web Benchmark does an adequate job for general capacity planning.

Web Diagnosis provides raw access to network traffic. While it may be useful to isolate data problems closer to the packet level, it's probably of little help to Web administrators.

More useful is Web Explorer, which checks a network for the existence of various IP-based services, including HTTP, FTP, DNS and Simple

Tomorrow's heavyweight?

We've wondered why traditional network management vendors haven't attacked the Web management segment more aggressively — until now, that is. Computer Associates International's forthcoming MasterIT Web management suite may shift the focus of Web management back to traditional network management vendors.

We took a quick look at a late-beta version of MasterIT and found it matches all of the site monitoring and alerting functions of the other products we looked at. Given CA's strength in network management, we expect this product to raise the bar when it comes to must-have Web management features.

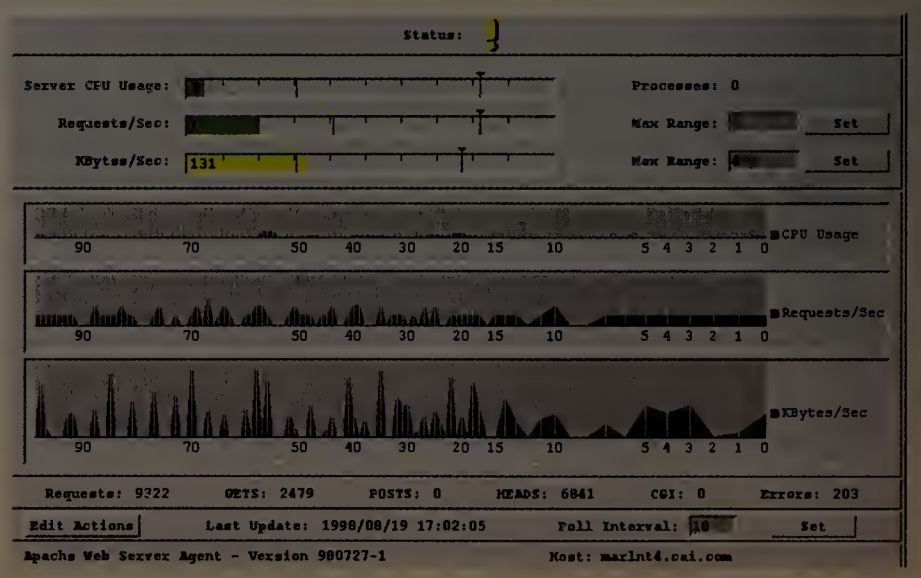
MasterIT runs on Windows NT Server 4.0 as well as on major versions of Unix, including Solaris, AIX and HP/UX; it can monitor Web servers running on these platforms. MasterIT consists of three components: Web server agents, which run on the servers and monitor their health; Web response monitors, which remotely evaluate monitored Web sites from a user perspective; and a management console that can run on a client PC.

Like WindDance Networks' WebChallenger, MasterIT provides real-time statistics on a variety of server aspects, including disk usage, bytes transferred per second and CPU utilization. The monitoring interface is clean and easy to follow. Like Freshwater Software's SiteScope, MasterIT provides a complete suite of Web monitoring and alarm functions. The product can be triggered not only by server availability, but by response time and page content. And, like the more sophisticated monitors available in SiteScope, MasterIT provides a high degree of granularity and can examine individual steps of transactions and page contents.

For content management, MasterIT provides basic link checking, quality assurance and log file analysis. While MasterIT's log file and link analysis capabilities are similar to WebTrends' Enterprise Suite 3.0's functionality, MasterIT does not have the same degree of depth and polish.

MASTERIT

Web server agents monitor server health, including CPU usage, number of requests per second and throughput.



MasterIT can also be used like WebChallenger for basic load testing, although that's not one of the product's primary functions. Unlike WebChallenger, MasterIT doesn't address server discovery. But CA's Unicenter TNG does offer this along with other network management and analysis features, and MasterIT is compatible with Unicenter TNG.

— Thomas Powell

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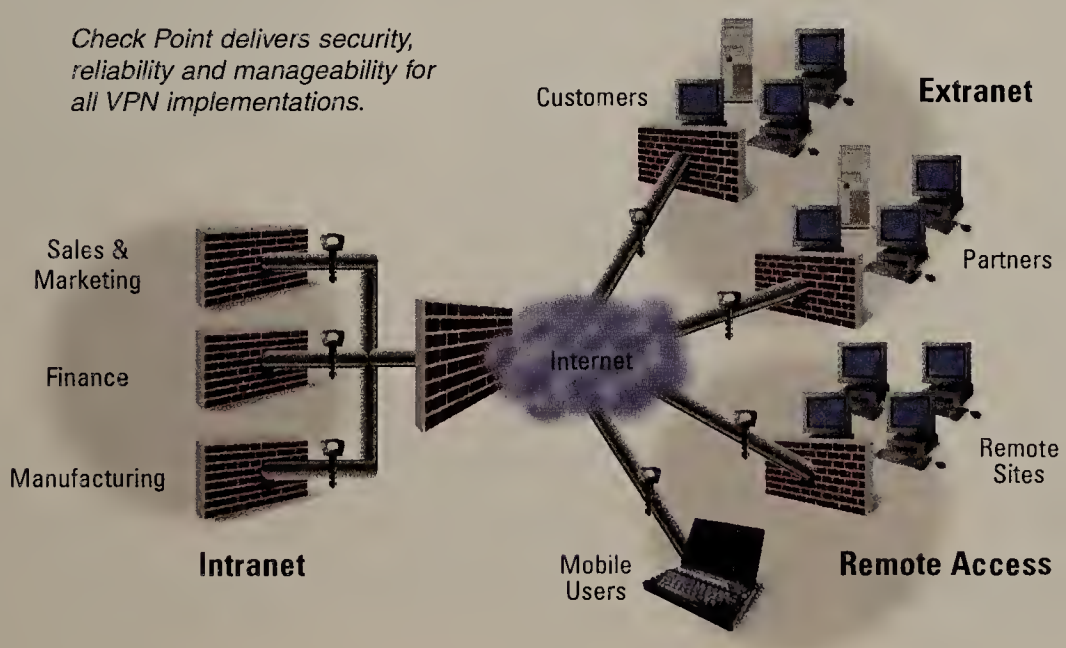

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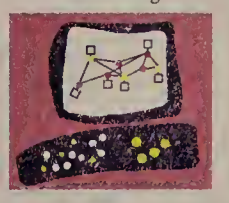

Mail Transfer Protocol, among others. Web Explorer helped us isolate some rogue Web servers on a large intranet.

The Web Statistics tool lets you easily watch Web traffic in near real time on a variety of servers.

Finally, Web Verify provides basic site link checking and some quality assurance measures, such as linking statistics, and the age and size of a page. While useful and fast, Web Verify doesn't provide any visualization tools, which are helpful when you're trying to decide how to fix a problem.

What we learned

While no currently shipping Web management product addresses all administrative needs, each of the three products reviewed here can help you better manage your Web site. For site content management and log file analysis, WebTrends' Enterprise Suite 3.0 is clearly the market leader in its price range.

While Enterprise Suite 3.0 provides some site monitoring facilities that may be adequate for smaller sites, it is outclassed by Freshwater Software's SiteScope. With its emphasis on monitoring and detailed alerting capabilities, SiteScope would be very useful for organizations that need to monitor small server farms or collections of intranet servers.

SITESCOPE 3.1

View Web conditions at a glance with SiteScope's compact console.

WebChallenger — with its "jack-of-all-trades, master of none" approach — may be appropriate for organizations looking for technical and network probing information at a reasonable cost. In renaming and relaunching the product as JetStream, we hope WindDance Networks will solve WebChallenger's biggest weakness: a poor user interface.

Powell is the founder and president of PINT (www.pint.com), a San Diego-based Web development firm, and the author of Web Site Engineering and HTML: The Complete Reference. *He can be reached at tpowell@pint.com.*

How we did it

We installed each product on a Pentium II 350-MHz Windows NT server with 128M bytes of RAM and monitored three Web servers: a Windows NT server running Internet Information Server, a Sun SPARC-5 running Netscape Enterprise server, and a Linux machine running Apache. When possible, we set monitors to scan for server availability, bandwidth utilization and URL availability.

We used a load simulator to create loads of 20, 50 and 100 simultaneous users on the machines to trigger bandwidth alarms. To set off additional alarms, we stopped the servers and removed URLs. We performed link analysis on a production site containing a few dozen broken links out of 2,500 pages and a total of more than 10,000 links; and we performed log analysis using day-, week-, and month-size log files with a maximum size of approximately 55M bytes.

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The Internet goes ape over John Glenn

By Neal Weinberg

It swept across the vast expanse of cyberspace like an electronic firestorm, jumping from private mailbox to joke forum to usenet newsgroup until it seemed to engulf the entire World Wide Web.

"Psssst. This is a secret. When John Glenn returns from space, everybody dress in ape suits. Pass it on."

Glenn lifted off on Thursday, Oct. 29, circled the globe 134 times and traveled a total of 3.6 million miles.

There's no way to track how many times the John Glenn joke circled the globe or how many people it reached, but by most accounts, it ranks as the most popular joke in Internet history.

Glenn touched down nine days later on Nov. 7, ending his extraordinary space mission. But by then the joke, which refers to the movie *Planet of the Apes,* had taken on a life of its own. There were new postings on the DejaNews newsgroup archive as late as Nov. 22, more than two weeks after Glenn's landing.

And 'Net watchers are still buzzing about the phenomenon. "It is, in my seven years of e-mail experience, the fastest spreading joke that I have encountered," says Ingrid Moon, a Web designer based in Studio City, Calif. She received the joke from 15 different people.

In fact, Danyel Fisher, a computer science graduate student at the University of California at Berkeley, created a Web site devoted to the joke and its origins (www.cs.berkeley.edu/~danyelf/Apes/first.html).

Fisher, who is also a student of folklore, has become fascinated with the way jokes spread or, as Netizens like to say, vector across the Internet. "Where other folklorists talk about hundreds of years of diffusion, I talk about hours of spreading. E-mail lists are an immediate indicator of what people are thinking, what their concerns are, and what topics are on the tops of their heads. When something resonates, it gets sent everywhere," Fisher says.

Ben Zimmer of the University of Chicago's anthropology department adds that the John Glenn joke took off because it was funny, time-sensitive and made people feel as if they were in on a big practical joke. Also, the *Planet of the Apes* reference resonated particularly well in what Zimmer describes as "the geeky world of the Internet."

"Seen in a broader historical perspective, topical jokes have often been linked to the rise of various forms of mass media, from newspapers to movies to TV to the Internet," Zimmer says. The TV era spawned the phenomenon of people watching The Tonight Show and repeating Johnny Carson's jokes the next day at work. "Now, with the Internet, topical jokes don't need to rely on the traditional mass media to get circulated," he says.

Aside from some people who didn't appreciate getting so many copies of the same thing, most Netizens see the John Glenn joke as a harmless diversion that helps build community on the Internet.

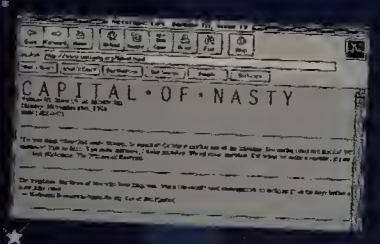
"Once we all watched Ed Sullivan; now we send each other ape jokes," says David Rothman of Alexandria, Va., author of the book *Networld!* "It's something that binds us together."

Neal Weinberg is Network World's *features reporter. He can be reached at nweinberg@nww.com.*

Thursday, Oct. 29:
Space Shuttle Discovery lifts off with Sen. John Glenn aboard.

Friday, Oct. 30:
The John Glenn joke is mentioned on the John Boy & Billy Big Show, a drive-time radio program beamed to stations in 13 states in the South and Midwest. The show's hosts say the joke was e-mailed to them that day by an unidentified listener.

Tuesday, Nov. 3:
Leandro Asnaghi-Nicastro, who received the joke from a friend a couple of days earlier, posts it on his online magazine called *Capital of Nasty.* By the end of the week, the joke will be e-mailed back to Asnaghi-Nicastro 48 times.



Frank Ortiz of Spring, Texas, spots the joke on the alt.autograph.collectors newsgroup and sends it to 10 people, one of whom runs the alt.gossip.celebrity newsgroup, where it's quickly posted. Three days later, the joke is returned to Ortiz in an e-mail with more than 2,000 names on it.

In Denmark, Rune Jensen gets the joke from a friend and posts it to a Danish newsgroup.

Derek Cashman receives the joke from someone at the ICQ instant messaging site and posts it on the rec.humor Usenet site, which claims more than 700,000 readers. That's where "it really exploded," Cashman says.

Wednesday, Nov. 4:
A Web site called Planet of the Apes, The Forbidden Zone, posts this bulletin:

"Please distribute to everyone you know on Earth. When John Glenn returns from space, everybody dress up in ape suits. We have six days in which to bury the Statue of Liberty up to her head. EVERYBODY HURRY!"

The number of times the joke appears in the DejaNews archives hits 3,600, up from 400 on Nov. 3 and one on Nov. 2.

Sunday, Nov. 22:
Someone in the U.K. posts the joke two weeks after Glenn lands. The joke tops out at 34,000 DejaNews entries.

Saturday, Nov. 7:
Glenn lands safely, and no one wearing an ape suit is anywhere to be found. But Australian comedian Brett Sheargold steps up and claims credit for originating the joke. He says he's been telling it Down Under since 1989 and updates it whenever another space shuttle is launched.

Sheargold claims to be upset about the spread of his joke because he says it's now so well-known he can no longer tell it.

Friday, Nov. 6:
The joke appears in the New York *Daily News, USA Today* and the *Los Angeles Times.*

USA TODAY

Thursday, Nov. 5:
Web cartoonist J.D. Frazer, known as Iliiad, transforms the joke into one of his cartoons and posts it on his User Friendly site, which he claims is frequented by more than three million readers each month.

Rush Limbaugh and Tom Snyder mention the joke on their respective radio and TV shows, brief articles appear in *The Washington Post* and *Toronto Sun,* and there's a report on National Public Radio.

The joke reaches 5,200 entries on DejaNews.

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Management Strategies

Save money now

Five fundamentals that can help you save thousands in telecom costs.

By Tom Thorne

Successful sports teams emphasize fundamentals; if they are neglected, the chance for success is minimal.

The same is true when it comes to ensuring that you're not paying too much for telecommunications services.

In my 13 years as a cost control analyst and network engineer for several banking institutions, I've devised my own list of fundamentals for managing telecom expenses that could help you keep carriers in check.

1. Audit local invoices.

The need to audit your local invoices cannot be emphasized enough. Immediately after making a service change, you should make sure it is reflected correctly on your bill. Additionally, it's wise to conduct a full audit at least every six months. Specific items to look for are:

SIS/THEO RUDNAK

- Billing for unused or previously disconnected business lines, trunks, Off-Premises Extension (OPS) lines and other services. Local exchange carriers (LEC) are famous for billing for circuits long after they've been disconnected.
- Casual billing. For every site, you choose a primary interexchange carrier (PIC), which is the carrier you want to carry long-distance calls. But if your interexchange carrier (IXC) doesn't know you've chosen it as your PIC, the IXC may impose a "casual billing" surcharge of 70 cents to $1.30 on each call. Generally, IXC billing on LEC invoices ranges from 9 cents to 30 cents per minute. If you see long-distance calls on LEC invoices that appear much higher than that, you may be the victim of casual billing. To fix the problem, make certain the LEC and IXC know which is the proper PIC. Also ensure that billing occurs on the correct invoice, which is typically the IXC invoice.
- Partial charges. Each line and trunk has several rate elements, such as charges for the trunk, access, touch tone and hearing impaired service. In examining an invoice, you may find some portions of a trunk have been disconnected, but not others. For example, the invoice may show 20 trunk charges at $80 per trunk and only 16 access charges. In this case, you may be being billed for four more trunks than you have.
- Charges for psychic hotlines, sports lines and the like. Incredible as it may seem, it's not uncommon for an employee to sign up for expensive calling services and list his work phone number, in which case his employer gets the bill. Charges for these services may range from $1 to $40 per month with an outrageous cost per minute. Keep an eye out for such charges, and make it clear to employees that they should only give out their business telephone number for business-related matters.

2. Watch for unnecessary switched access services.

In most instances, switched access services should not exist at locations where you have inbound or outbound dedicated T-1 access. Instead, configure the switched services to ride the dedicated T-1 lines as much as possible. Usage charges generally are 30% to 50% less with dedicated access.

3. Check for phantom long-distance charges.

When Company A disconnects a local line, the IXC and the LEC must be notified. If only the LEC is notified, the number will remain in the long-distance carrier's database as belonging to Company A. When the number is reassigned, its new owner will be charged for the local portion, and Company A will still be billed for the long-distance charges. Make a point to check your bill for such phantom charges.

4. Be prepared to push for a deal.

Competition for your long-distance dollar is fierce. The carriers want your money, and many of them will make some incredible deals if you demand it. If you have not reached a special agreement with your carrier, the time to do so is now.

Alternatively, it may be time to renegotiate. For larger companies, a method that has often proven successful is to give your favored carrier about 70% to 80% of your business and give a second carrier 20% to 30%. This way, both carriers will be striving for more of your business and will be more likely to give you the best possible rates.

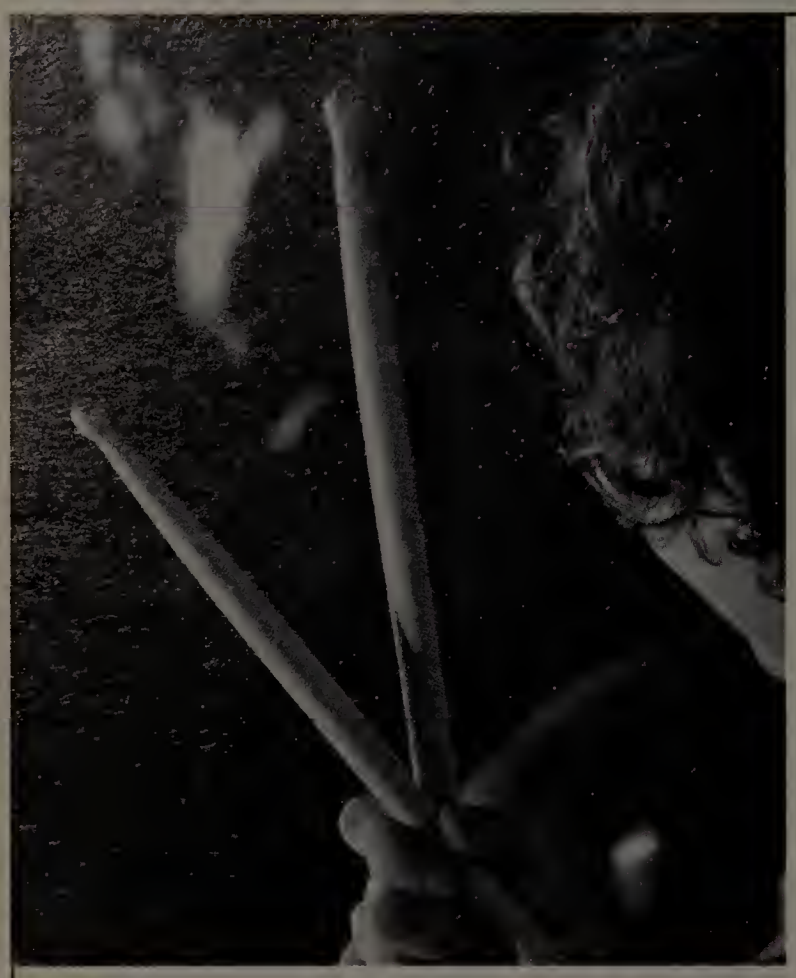
5. Watch for off-contract IXC invoices.

Normally, invoices for services covered under a contract come in a distinct package from an IXC, usually just a few times a month. If you are getting additional straggling invoices from an IXC, there's a good chance the contracted rates are not being applied to the services covered on those invoices and you're paying more than you should be.

The circumstances presented here are not rare or extreme; they are real examples of what often occurs. Knowing what to look for gives you the potential for tremendous savings. If you cut your cost-per-minute by half a cent, you'll save $5,000 for every million minutes of usage. Similarly, if you find five disconnected central office trunks and five disconnected OPS lines that you're still being billed for, you can easily eliminate $500 to $1,000 per month — and you may get a credit on top of that.

So the message is simple: Stick to the fundamentals, and you'll find the savings.

Thorne is a voice network engineer for Bank of America. He can be reached at tgalthorne@aol.com.



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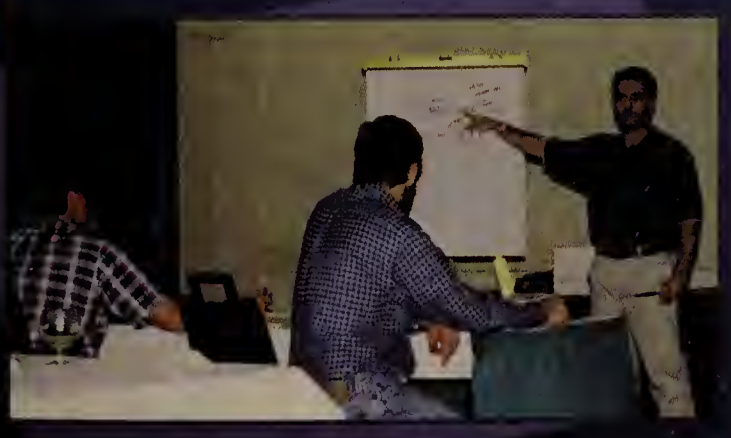

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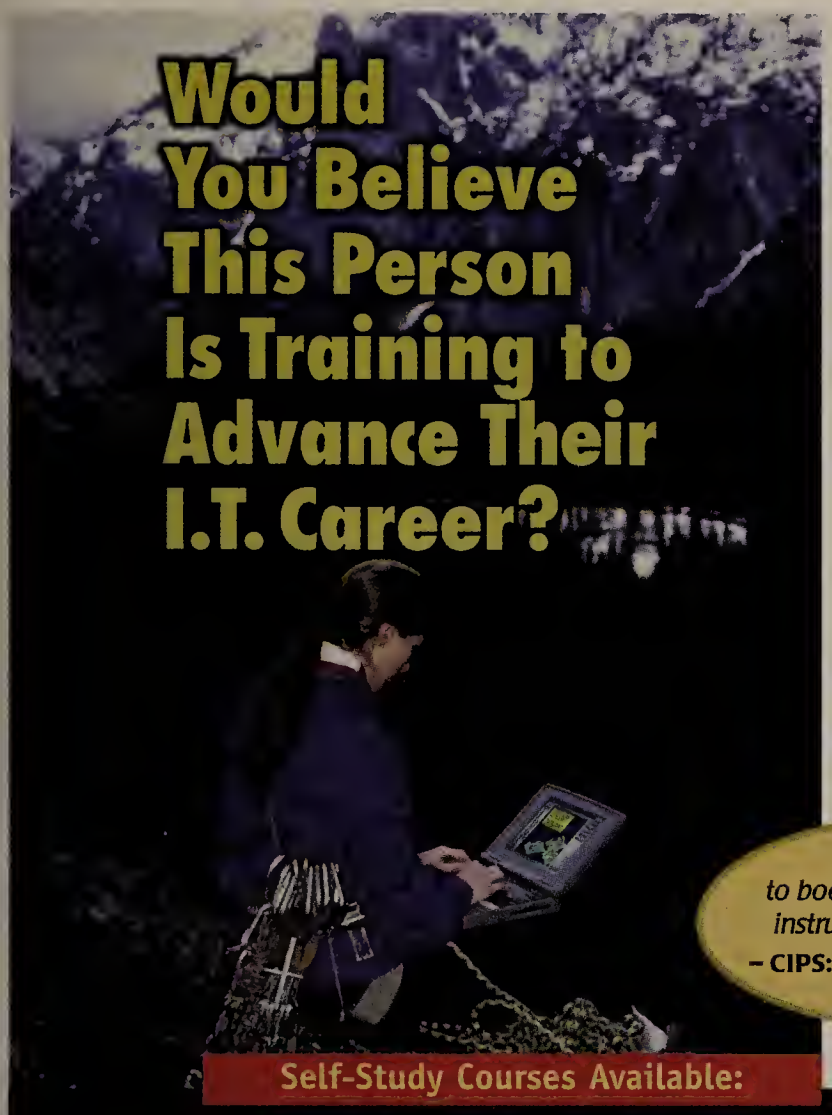

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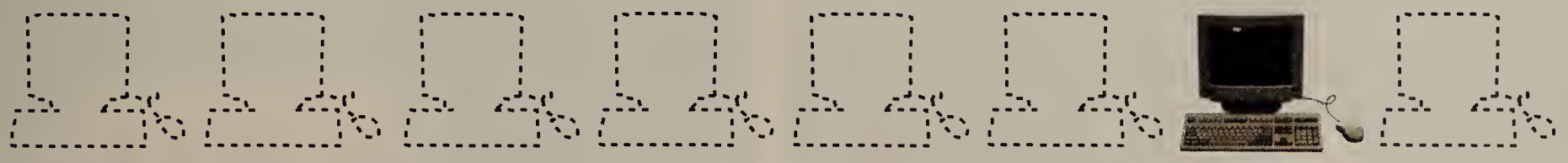

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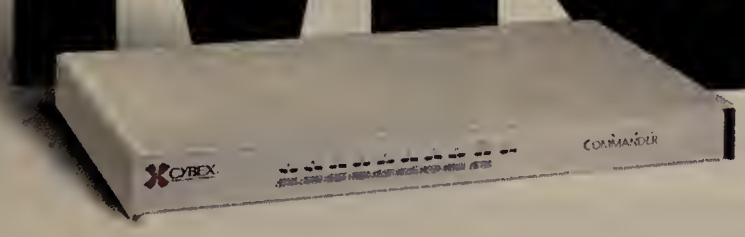

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MCI WorldCom

Continued from page 1

cation between MCI and WorldCom staff. "Our approach there has been to redeploy people where there has been overlap," Monroe says.

But many top names from MCI have already left. Just last month, Stephen Von Rump, MCI's vice president of enterprise services and champion of the company's corporate data-services drive, left to join a videoconferencing firm in Austin, Texas.

That followed departures by MCI Chief Information Officer Lance Boxer and global engineering Senior Vice President Jack Norris, who moved to Lucent and emerging international carrier Teleglobe Communications, respectively.

Many analysts say MCI WorldCom could stand to trim some executives as part of its efforts to reduce expenses and ultimately cut prices. But, they add, some of the outflow could result in the loss of executives with expertise in technology areas of interest to users. The departures also could wreak havoc with account teams.

In a particularly stunning blow, a team of nine crack engineers in MCI's Internet security unit, headed by Dale Drew, last month left en bloc to join emerging national carrier Qwest Communications, which maintains a national network operations center in Arlington, Va. Other defections, including ones to Teleglobe and wireless carrier Nextel Communications, have also involved groups of key personnel moving together.

Company insiders and analysts cite a combination of factors causing the big brain drain. They include the inevitable merger-related turf fights, as well as MCI's earlier failure to merge with British Telecommunications (BT), debates over product priorities, corporate culture clash and sheer exhaustion.

"MCI went through a challenging and grueling two years," Von Rump says. "It took a lot out of the entire management team."

Uncertainty at the top

Questions were swirling last week around two top MCI executives who remain: John Gerdelman, who until recently was president of MCI's network-services division; and Tim Price, president of MCI WorldCom's U.S. operations and No. 3 under CEO Bernie Ebbers and Chairman Bert Roberts.

Gerdelman confirmed to *Network World* that he recently ceded the job as chief of MCI WorldCom's network to WorldCom veteran Ron Beaumont. Gerdelman was reassigned to work on the company's new technology-ventures fund and some regulatory matters.

"Am I as busy as I was before? Not exactly," Gerdelman says. But for now, he adds: "I'm not going anywhere. If there's not a place for me six months from now, I'll look and see where things are then."

"Everyone in D.C. has been very elusive about John's status," says one insider who asked not to be identified. "Suddenly, he wasn't showing up on org charts, and then he was assigned to Bert [Roberts] on a special project. The word is that he is in the process of exiting."

Meanwhile, Price was reportedly weighing his options. A favorite among MCI's business sales force, Price "has been adamant that he is absolutely committed to staying," says one source. But following mega-deals for former top AT&T executives with sales experience — such as Qwest CEO Joe Nacchio and Teligent CEO Alex Mandl — Price is widely considered to be capable of commanding a salary and bonus package in the tens of millions of dollars.

"He is a very valuable commodity, and he knows it," says Frank Dzubeck, president of Communications Network Architects, a Washington, D.C. consulting firm.

Should Price leave, what some sources describe as a dispirited MCI sales staff may seek new pastures. "MCI WorldCom is squeezing blood out of a turnip," says an e-mail sent by a global accounts representative to a *Network World* reporter. "I've been with MCI for 10.5 years and now that Bernie has moved in, the 'stuff' is hitting the fan all over."

Like several other insiders, this representative says that "to make our numbers, layoffs are around the corner." It was reported that Ebbers himself bluntly told representatives at a late-September sales meeting in St. Louis that the company's expense ratios would have to go down, sending several representatives fleeing for interviews with Qwest and other competitors.

With MCI WorldCom reportedly trying to eliminate $3 billion in expenses, "you can't make that on the top line," says Ian Dix, vice president of business-services marketing at Qwest. He adds: "We've been hiring furiously." Two other managers who recently left MCI WorldCom told *Network World* that layoffs of several thousand people could occur any time between today and Dec. 15.

Other observers caution that the exact timing of any reduction-in-force is in question. They say the rumors may be popping up because MCI itself has often dropped employees in December. "The specter of a layoff before year-end has been with this merger ever since last spring," says one of the recent ex-managers. And some units may not suffer at all: Ebbers last month committed to adding 2,000 employees at a new suburban Washington facility for Internet subsidiary UUNET.

But one financial analyst who requested anonymity says he has heard from "well-placed sources within MCIWorldCom" that layoffs within the company's traditional units are imminent. He puts the likely number at 6,000 based on cost reductions the company has laid out in the past.

Merger whiplash

Weighing even more heavily than possible layoffs on many of the outgoing MCI employees, especially in network operations, is MCI's earlier failed merger with BT.

"MCI had a plan of attack for globalizing," Dzubeck says. "All of the apple cart got upset." Besides, he says, "WorldCom had its own global engineering operation under MFS."

The BT deal would have left MCI as a stand-alone U.S. unit, adds Von Rump, while the WorldCom merger created large U.S. network overlap. Another aggravating factor is MCI WorldCom's apparent plan to move much of its net, including its core frame relay service, to Ascend Communications switches. Part of the reason for that move, according to Dzubeck, is that UUNET heavily uses Ascend gear.

Numerous observers also noted that WorldCom historically has not tried too hard to retain employees after a merger. "It's not their way," Dzubeck says.

Even if the company begs executives to stay, they might go anyway for another reason. When the merger closed in mid-September, MCI executives who had been granted unvested stock options for rank or performance suddenly saw all their options — except those granted earlier in 1998 — immediately vest. MCI's stock price nearly doubled since WorldCom announced its takeover bid in October 1997, so many long-time MCI executives were sitting on a pile of cash.

"There was a lot of vesting of stock," says Jim Collins, who headed public relations for network services before leaving last month for Frontier Communications, an emerging national carrier based in Rochester, N.Y. "A lot of the employees made out very well in the merger." Adds Von Rump: "The financial incentive was less to stay with the company." ■

MOVING ON

A sample of the MCI executives who have left the company since its merger with WorldCom:

Name	Position at MCI	New company	Position at new company
Jonelle Birney	Vice president, corporate communications	Blanc & Otus (high-tech public relations firm)	President and CEO
Lance Boxer	Chief information officer	Lucent	President, communications software group
John Brunette	Attorney, ventures and alliances group	Teleglobe Communications (international carrier)	Vice president and general counsel
Jim Collins	Director of corporate communications, network and information technologies	Frontier Communications (emerging national carrier)	Vice president, corporate communications
Nate Davis	Senior vice president, finance	Nextel Communications (wireless carrier)	Vice president, engineering and operations
Dale Drew	Senior manager, Internet MCI security and engineering	Qwest	Director, network security
Steve Heap	Vice president, global network planning, Concert	Teleglobe Communications	Vice president, global network planning and engineering
John Jacquay	Chief operating executive, MCI Systemhouse	Gric Communications (consortium of ISPs)	President and chief operating officer
Ray Kang*	Director, broadband and multimedia marketing	WAM!NET (specialized Internet applications)	Vice president, product management and development
Jack Norris	Senior vice president, global engineering	Teleglobe Communications	Chief network officer
David Trachtenberg	Executive director, online marketing	Prodigy	President and chief operating officer
Stephen Von Rump	Vice president, enterprise services	VTEL (video networking provider)	Chief marketing officer

* Left MCI before the WorldCom merger actually closed.

Cabletron

Continued from page 1

tracking firm. Cabletron says its third-quarter revenue will fall to the range of $330 million to $340 million. Revenue for the same period last year totaled $331.8 million. Last week's announcement caused Cabletron's stock to plummet 35%.

The jolt prompted some analysts and shareholders to call for President and CEO Craig Benson to sell the company while he can still get a good price for it. Short of selling the company, others are calling for Benson to step down.

"I think Cabletron's almost going to be compelled by competitive conditions and market forces to seek out a strong partner," says Andy Schopick of Nutmeg Securities. "It makes sense for Cabletron to align with and merge with a larger entity that's seeking a strong data networking presence."

"I think Benson is the problem, and I've said that all along," says Craig Johnson, principal at The PITA Group in Portland, Ore. "The company takes on the character of the main person."

Benson says Cabletron is not for sale. Some analysts say it would be a tough sell anyway.

"Who's going to buy them?" asks Scott Heritage of Warburg Dillon Read. "I don't know of anybody that would be that interested in buying them now."

Benson says the company will also forge ahead with its current management structure.

"My top management team has been turned over," Benson says, adding that most senior managers have been at Cabletron for less than 18 months. "I've never been CEO before."

Reasons for the fall

Cabletron was hurt by a revenue shortfall due to Nortel Network's purchase of Bay Networks; flat revenue from business with Compaq/Digital; and a weak quarter in the declining shared hub market, analysts say.

Cabletron management says that about half of the revenue shortfall was due to Nortel's purchase of Bay. Cabletron not only provided Nortel with equipment for its internal network but also worked with Nortel jointly in customer accounts.

The decline in Nortel business was expected, despite statements made by Cabletron and Nortel last June that their Power Networks program would continue. Power Networks is a two-year-old alliance between Cabletron and Nortel to co-develop integrated voice/data multimedia network products.

Sales of shared-media hubs, meanwhile, have ramped down considerably due to the industry's uptake of switched LANs.

"Two years ago, 70% of my business was in shared network products," Benson says. "It's now 10% or less. That's 60% of my business blown away. Most people are bankrupt after that happens."

Cabletron is, therefore, banking heavily on its SmartSwitch Router to turn its fortunes around. Revenue for that product doubled in the third quarter compared with last quarter, according to Warburg Dillon Read. That figure would put SmartSwitch Router sales in the $30 million to $40 million range.

But analysts say the company still needs something else. Before last week's decline, Cabletron's shares had risen 23% from their Nov. 18 close based on optimism about sales of new products.

"They do appear to have an execution problem on the distribution side," says Michael Duran of Lazard Freres in New York. "Ultimately, all of the execution problems are owned by management."

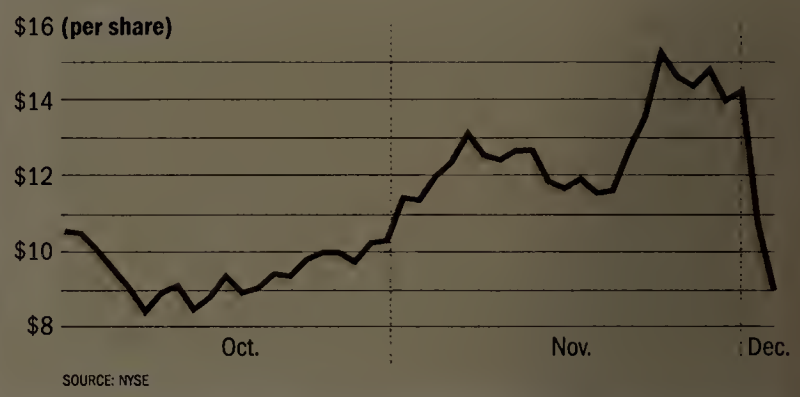
Lazard Freres has downgraded its Cabletron stock rating from hold to sell. BancBoston Robertson Stephens, however, has reiterated its buy rating due to "management's aggressive focus and the company's new product pipeline."

But some users say they would be receptive to new leadership or a new owner.

"I could see somebody like a Lucent as a good thing not only for Cabletron but for the customer base as well," says Ken Sorenson, director of networks and systems at Butler University in Indianapolis. ■

DROP-OFF

While Cabletron's stock price had been climbing since mid-October, it fell 35% last week after the company said it would post a loss for its third quarter.



Home Shopping

Continued from page 1

making sure that we don't lose a call."

Losing calls was a problem with the company's old network, a shared-media routed FDDI backbone with direct terminal connections to a Unisys mainframe. A hiccup in some remote part of that network would be broadcast across the whole net, slowing performance, call response and order fulfillment. That cost the company money.

"We wanted to avoid problems such as having one chattering network interface card take our whole network down," said Joseph Piplica, director of network engineering at the company. "That happened on a couple of occasions."

With switched VLANs, the company also wanted to contain broadcast storms and keep them from affecting the whole call center network, Piplica says.

With these issues in mind, the company solicited bids from major internetworking vendors. 3Com was selected over Cisco, Bay Networks and Cabletron, which was Home Shopping Network's incumbent vendor.

Bay was eliminated early because White knew the company was "on the block." Bay was acquired by Nortel Networks in June. Cabletron was the next to get bumped because it was having financial difficulties, and White was concerned about the company's longevity. "Are you willing to bet your company's direction on them for five years? I'm not," White says.

That left 3Com and Cisco. Cisco pitched its Catalyst 5500 switch with the Route Switch Module. But 3Com "beat the dickens out of Cisco on price and functionality," White says.

The company's new call center network is based on 48 3Com SuperStack 1100 switches, two SuperStack 3900s, a CoreBuilder 9000 and a CoreBuilder 3500 Layer 3 switch.

Up to 1,200 call center agent workstations are connected to the 1100s via redundant switched 10M bit/sec links. The 1100s are connected to the CoreBuilder 9000 backbone switch over redundant 100M bit/sec Fast Ethernet pipes.

Home Shopping Network's server farm is attached to the 3900s over 10/100M bit/sec links, and the 3900s are connected back to the CoreBuilder 9000 over Fast Ethernet. Desktops and servers are configured into six VLANs based on sales geography, and the CoreBuilder 3500 routes among those VLANs over a Gigabit Ethernet link to the 9000 switch.

When a call comes into Home Shopping Network, an agent types in the order and payment information on a PC. The net transports this data to a Windows NT server, which authenticates the agent and lets him access a Unisys order processing mainframe.

The order data is then routed to a database on the mainframe, which approves the payment method and processes the sale.

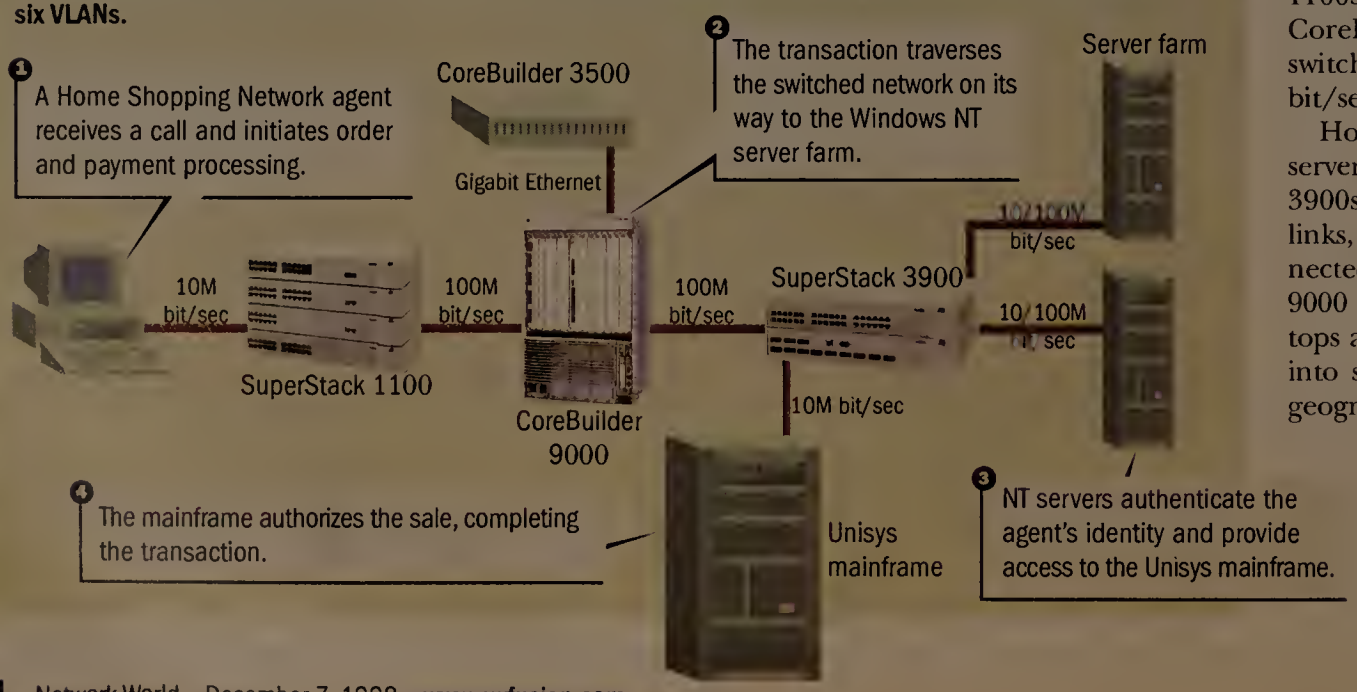
The firm's network handles an average of 160,000 calls per day. On its heaviest day in September, it had 941,000 calls.

"We had to design a network and a system that will handle that kind of a load in 24 hours," White says. The company did that with the new 3Com network. "We want to answer every call within 25 seconds," he says.

By increasing response time, the network will increase Home Shopping Network's bottom line, he says. Cutting one second off of the average handle time of every call is worth $50,000, and the new net is reducing the average call handle time by more than 15%. "That's significant," White says. "What I care about is response time to the desktop because that half a second is important to me." ■

HOME SHOPPING FOR THE HOLIDAYS

A new high-speed Layer 3 switched network lets Home Shopping Network handle more calls, thereby increasing revenue. The company uses 3Com's CoreBuilder 3500 Layer 3 switch to route traffic among six VLANs.



Policy

Continued from page 8

agement station and have the policies carried out by specific controls in the network. One policy could be that voice traffic gets a certain level of quality of service (QoS), and another could be that the CEO's traffic always gets priority over that of other employees. Security and access to network resources also could be governed through such a system.

Today, such policies are enforced by firewalls or by QoS controls in routers and switches. In the future, ASICs in those devices may take on the enforcement functions (see story, page 1). Most policy-based network tools are scheduled to ship in the first half of 1999.

Unfortunately, it may be a few years before network equipment vendors extend their policy-based management wares beyond their own devices, according to Stephen Elliot, senior analyst at Cahners In-Stat Group in Newton, Mass.

While third parties press their vendor-neutral approaches, many customers may wait and see what the major players can offer, Elliot says.

Meanwhile, the Internet Engineering Task Force (IETF) is putting together a standard way of communicating policy information to network devices. Called Common Open Policy Service (COPS), the draft standard isn't expected to be completed until the middle of next year. The IETF will continue its work on the draft at this week's meeting.

While COPS will define a common language for communicating policies, it's not the be-all and end-all, says Gordon Smith, vice president of marketing at Ukiah, of Campbell, Calif. New devices will be able to speak COPS in the second half of next year, but there will still be a need to communicate policies to older equipment using other means.

Though there's a lot of hype surrounding policy-based networking, there are still some questions about where exactly it is needed. In a local network, users can buy lots of bandwidth at low prices and can overprovision their networks, according to Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consulting firm.

That's the strategy Janus, a Denver-based financial services company, has adopted. Janus has determined it would be cheaper to buy extra bandwidth than to devote systems and administrators to handle policies.

The WAN edge, however, is a different story. "In places where there's limited bandwidth, you can build a case for policy-based networking," says Chuck Yoke, network architect at Janus.

Right now, the company uses some basic queuing techniques at the WAN edge to dole out access to those links. ■

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Backspin

Feds' Y2K stand: Don't worry, be happy

"There aren't as many people lying to us as there used to be."
— Sen. Robert Bennett (R-Utah)
co-chair of a Senate special committee on Year 2000

I wrote about the Year 2000 problem sometime ago, wherein I opined that the hysteria surrounding the issue was out of all proportion to the extent of the problem. My main point was that the hysteria over Year 2000 problems is odd, considering that much worse problems face us every day from software that is simply badly engineered (as in planes falling out of the sky).


Mark Gibbs

But that doesn't mean we should ignore the Year 2000 problem. Nope, we should be doing all we can to minimize the impact. To this end, the U.S. government enacted legislation requiring government agencies to assess and investigate potential Year 2000 problems.

Now you'd think civil servants faced with complying with such legislation would do so. Apparently you (and I) would be wrong.

Yep, the sad truth as reported by *USA Today* on Nov. 28 is that the Defense Special Weapons Agency (DSWA) — a department of the nation's largest agency, the Department of Defense — was quite willing to lie about compliance.

The DSWA, now part of the Defense Threat Reduction Agency (DTRA), is responsible for the safety and security of U.S. nuclear stockpiles and emergency response in the event of a nuclear incident. The department's lie concerned three of five "mission-critical" systems "essential to conducting its most primary duties." The DTRA claimed to be fully prepared for 2000 despite not having done any testing! Even more shocking, the department didn't bother to develop any contingency plans as required by the Defense Department.

These atomic bombshells were dropped in a Defense Department Inspector General's Report issued on Oct. 30, which, surprisingly, I could not find online.

Capt. Allan Toole, who was recently assigned to deal with the DSWA problem, is quoted in *USA Today* as saying, "We recognize and agree with the findings of the Inspector General's report." Toole wouldn't discuss the DTRA's "false reporting."

Toole is reported to have not yet figured out what needs to be done, but he predicts the agency's systems will be "100% in compliance by April" 1999. He is also quoted in the *USA Today* feature as saying (honestly), "I have a good feeling about Y2K in this agency."

Sen. Bennett is reported to have said, "Does it come as any surprise to you that the Pentagon on occasion fudges on the truth? . . . The Pentagon has the biggest problem simply because they are the biggest agency. I know they are working very hard."

Senator, do you subscribe to Toole's "good feeling"?

There are several surprising things in this case: First, why is it that none of the Defense Department sites, including the Federal Inspector General Year 2000 Page (www.ignet.gov/ignet/internal/pcie/y2k.html), has any news about this?

Second, how can a senator and the military officer handling this problem make such vacuous comments?

I stand by my assertion that the Year 2000 problem is not the biggest software problem we face. And just think, if the DTRA had to lie about being Year 2000-compliant, how much more serious might all of its other software problems be? Unlike Toole, I don't have a good feeling about it.

Hidden problems to nwcolumn@gibbs.com or (800) 622-1108, Ext. 7504.

'Net Buzz

The latest on the Internet/Intranet industry

THE BUSINESS OF PORTALS One of the major prizes for America Online in its planned $4.2 billion purchase of Netscape is the browser maker's Netcenter Web site, or portal, and its nine million subscribers.

Portals are the latest revenue-generating scheme to sweep the Internet. The theory is that if you attract enough visitors by making your Web site a gateway to the untamed and uncharted Internet, advertisers will write large checks in your company's name.

AOL already has its own portal — the Internet base camp to more than 14 million users — but it is geared toward consumers. Netcenter tends to draw a more corporate and techno-savvy crowd.

The AOL and Netcenter portals rank among the most-visited sites on the Web. They threaten to dwarf competitors, most of which must adopt a niche strategy or perish. But one upstart ready to give the market a go is **Portera Systems,** which in February plans to launch a "business portal for mobile professionals" on a subscription basis.

Kevin McDonald, Portera's marketing vice president, says the Portera site (www.portera.com) will feature three elements for mobile professional users and the mid-market customers it also is targeting: enterprise applications; business content; and electronic commerce functionality.


Chris Nerney

Let's say you're a sales exec headed for a big meeting and you need travel info. You can use a hosted application on Portera's site to access your meeting information via hyperlinks. Click on the meeting link and Portera will provide you with the weather in the city you're visiting, as well as directions to the meeting site.

"That's the big difference between us and Netcenter," McDonald says. "Our portal is a fully functioning application."

The company already has content and service deals **with SportsLine USA, Standard & Poor's ComStock, Weathernews and GoldenWare Travel Technologies.**

This is the second incarnation for Portera, which was founded in 1996 as **Netiva Software,** a vendor of database development tools. The firm's expensive, proprietary software fared poorly against development tools from vendors such as **Sybase** and **SuperCede.**

Portera is funded by **Kleiner Perkins Caufield & Byers'** Java Fund, **Institutional Venture Partners** and **RRE Investors,** and is located in Campbell, Calif.

QUIT BLAMING THE INTERNET All Web users have experienced the pain of staring at that little hourglass on their screen for minutes on end. For Web sites, the user's wait could result in the loss of impatient customers. And while it's true that slowdowns related to traffic congestion on the 'Net may be unavoidable, most firms that do a lot of business online could improve performance of their Web sites if they only knew where to begin.

That's what **Keynote Systems** hopes to provide the answer to with its new service designed to analyze, from the user's perspective, the performance of heavily trafficked Web sites.

Keynote's Full Page Component service uses agents running on ISP servers to measure users' experiences downloading content from Web sites. This information can then be used by Web site managers to tune their sites for optimal performance.

The service measures DNS lookup time, connection setup time, HTML download time and component-download time.

Full Page Component is available on a monthly or annual subscription basis. Prices range from $295 to $695 per month per URL.

You know what 'Net Buzz wants for Christmas, and it's not likely that Santa is going to come through. So send your best Internet news, rumor and gossip to Chris Nerney at (508) 820-7451 or cnerney@nww.com.

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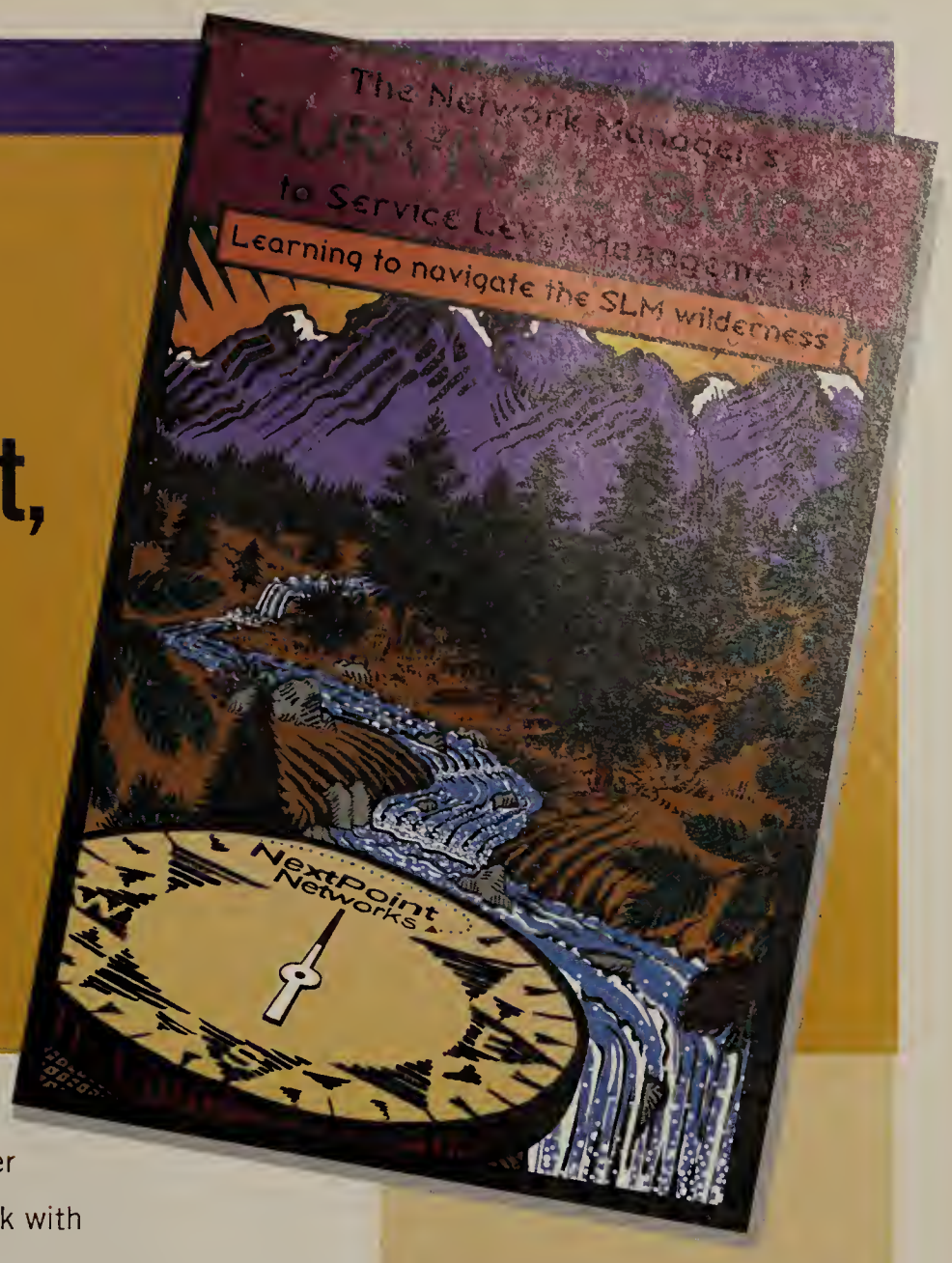

When it comes to network and application service levels, end-users are never satisfied. Always demanding better performance while flooding the network with diverse application traffic. It's enough to leave network managers feeling lost in the wilderness!

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